

# DJ-596T / DJ-596E

## Service Manual

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**ALINCO, INC.**

# SPECIFICATIONS

General			
Type		DJ-596T	DJ-596E
Receiving Range	VHF	136.000-173.995MHz	144.000-145.995MHz
	UHF	400.000-511.995MHz	430.000-439.995MHz
Transmitter Range	VHF	144.000-147.995MHz	144.000-145.995MHz
	UHF	420.000-449.995MHz	430.000-439.995MHz
Modulation		F2, F3	
Frequency Stability		$\pm 5\text{ppm}$ (-10°C~+60°C) (+14° F~+140° F)	
Ant.Impedance		50 $\Omega$	
Supply Voltage		6.0~16.0VDC	
Current	Transmit	DC13.8V : VHF Approx.1.2A, UHF : Approx.1.4A 9.6V (EBP-50N) : VHF Approx.1.2A, UHF : Approx.1.5A	
	Receive	Approx.75mA	
	Battery Save	Approx.25mA	

Transmitter		
Type		DJ-596T DJ-596E
Power Output	External 13.8V	Approx.5W
	EBP-50N equipped	VHF : 4.5W, UHF : 4W
Modulation		Variable Reactance
Max.Deviation		$\pm 5\text{kHz}$
Spurious Emission		-60dB or less
Mic.Impedance		Approx.2k $\Omega$

Receiver		
Type		DJ-596T DJ-596E
System		Double-conversion super heterodyne
Intermediate Frequencies		1 <sup>st</sup> : 39.15MHz, 2 <sup>nd</sup> : 450kHz
Sensitivity (12dB SINAD)	144.000-147.995MHz	144.000-145.995MHz
	420.000-449.995MHz -15.0dB $\mu$ or less	430.000-439.995MHz -15.0dB $\mu$ or less
AF Output		300mW or over (MAX) 200mW or over (10% Distortion factor 8 $\Omega$ )
Spurious response		60dB or over
Squelch sensitivity		Approx.-10dB $\mu$ or less

# CIRCUIT DESCRIPTION

## 1) [RX]

### 1. RX Method: Double Super Heterodyne Method

1st IF : FM 39.15 MHz

2nd IF : 450 kHz

### 2. Front End

#### VHF

The signal input from antenna passes through the duplexer FL1 and low pass filter, then it is amplified at RF amplifier Q17. The amplified signal is led to band pass filter and band switch D19, then input to the mixer Q16.

#### UHF

The signal input from antenna passes through the duplexer FL1 and low pass filter, then it is amplified at RF amplifier Q20. The amplified signal is led to band pass filter and band switch D23, then input to the mixer Q16.

### 3. Mixer

The input signal to the mixer Q16 and the 1st local signal are added or subtracted at mixer Q16, and the crystal filter XF1 selects the signal of 39.15 MHz, then it is amplified at the 1st IF amplifier Q18 after the adjacent signal is eliminated.

The 1st local signal from VCO output is supplied to the base of mixer Q16 passing through the buffer amplifier Q15. The upper side band of the local signal is used in VHF band and the lower side band of the local signal is used in UHF band.

### 4. IF

The signal amplified at the 1st IF amplifier Q18 is supplied to pin 24 of IC5 for demodulation. Also the signal of 12.9 MHz from the reference buffer output of IC 2 is multiplied by 3 at Q19, then it is led to pin 1 of IC5. 2 input signals are mixed in the mixer circuit inside IC5 and converted into the 2nd IF signal of 450 kHz.

The 2nd IF signal output from pin 3 of IC5 is supplied to pin 7 of IC5 after the adjacent signal is eliminated at the ceramic filter FL3 in WFM mode, or at the ceramic filter FL2 in NFM mode. The input 2nd IF signal is demodulated at the limiter amplifier and quadrature detection circuit inside IC, then output from pin 12 of IC5 as an AF signal.

## 5. Squelch

Q24 determines the gain of AF signal output from pin 12 of IC5 according to the WFM/NFM of IC8. Then the signal is input to pin 19 of IC5. The input signal passes through the noise filter amplifier and rectifier circuit, then output from pin 21 of IC5. The output signal is supplied to A/D port of microprocessor IC6, then the microprocessor IC6 judges it to control ON/OFF of the audio output.

## 6. Audio

Q24 determines the gain of AF signal output from pin 12 of IC5 according to the WFM/NFM of IC8. Thereby amplified signal passes through AF switch IC15 and band pass active filter IC8, then controls AF signal level at the microprocessor IC6 with the electronic volume IC10. The controlled AF signal is supplied to the audio power amplifier IC9 pin 2. The input AF signal is amplified at IC9 and output from pin 6 to drive the speaker, etc.

## 7. VCO

### VHF

VCO in VHF band consists of the Colpitts oscillator. D6, D9, L15 and L20 determine the oscillating frequency, and the signal is oscillated at the transistor Q4. L20 is passed at shift transistor Q8 when receiving. The oscillated signal is supplied to pin 2 of PLL-IC2 passing through the buffer amplifier Q7 and Q1.

### UHF

VCO in UHF band consists of the Colpitts oscillator. D16, D18 and L22 determine the oscillating frequency, and the signal is oscillated at the transistor Q12. The oscillated signal is supplied to pin 19 of PLL-IC2 passing through the buffer amplifier Q7 and Q1.

## 8. PLL

PLL-IC2 is used to control the oscillating frequency of VCO. IC2 is controlled by the serial control signal sent from the microprocessor IC6. The reference frequency of 12.9 MHz from IC2 oscillates the crystal oscillator X1 inside the circuit.

### VHF

IC2 compares the frequency gained by dividing the signal added to pin 2 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 12.9 MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 8 of IC2, then the signal is converted into the DC voltage at the passive filter and added to the cathode side of VCO vari-cap D6 and D9 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

## UHF

IC2 compares the frequency gained by dividing the signal added to pin 19 of IC2 by the control signal from IC6 with the frequency gained by dividing the reference frequency of 12.9 MHz inside IC2. When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 13 of IC2, then the signal is converted into the DC voltage at the inside circuit for passive filter and added to the cathode side of VCO vari-cap D16 and D18 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

## 2) [TX]

### 1. Microphone Amplifier

The microphone amplifier IC14 has 2 operational amplifiers. The voice is converted into the electric signal through the microphone, then supplied to IC14. The input signal is amplified and pre-emphasized to be output.

## VHF

The signal output from microphone amplifier is adjusted the maximum frequency deviation in WFM mode at VR1, then adjusted the maximum frequency deviation in NFM mode at VR2. The adjusted signal is added to the cathode of VCO vari-cap D11 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

## UHF

The signal output from microphone amplifier is adjusted the maximum frequency deviation in WFM mode at VR3, then adjusted the maximum frequency deviation in NFM mode at VR4. Then the adjusted signal is added to the cathode of VCO vari-cap D17 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

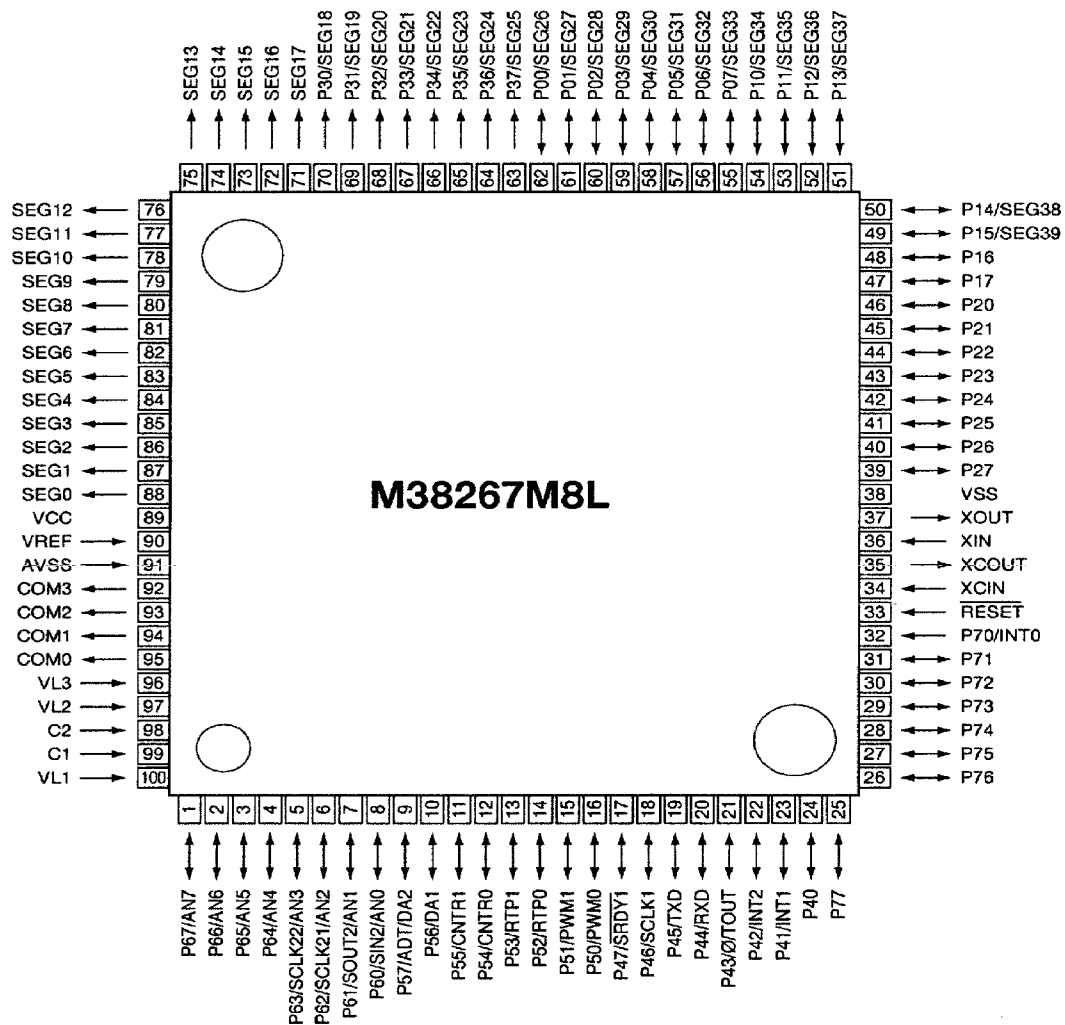
### 2. Power Amplifier

The oscillated signal at VCO is supplied to the power amplifier Q5, passing through buffer amplifier Q7, driver amplifier IC1 and Q6. The power-amplified signal is supplied to the antenna through the duplexer after the harmonics are attenuated enough.

### 3) M38267M8L (XA0844)

CPU

Terminal Connection  
(TOP VIEW)



No.	Terminal	Signal	I/O	Description
1	P67/AN7	SMT	I	S-meter input
2	P66/AN6	SQL	I	Noise level input for squelch
3	P65/AN5	BAT	I	Low battery detection input
4	P64/AN4	TIN	I	CTCSS/DCS tone input
5	P63/SCLK22/AN3	BP1	I	Band plan 1
6	P62/SCLK21/AN2	UND	O	DCS signal mute
7	P61/SOUT2/AN1	DCSW	O	DCS signal mute
8	P60/SIN2/AN0	FKEY	I	Function key input
9	P57/ADT/DA2	DCS	O	CTCSS/DCS tone output, Tuning voltage output
10	P56/DA1	DTOUT	O	DTMF output/EVR control output
11	P55/CNTR1	C5C	O	C5V power ON/OFF output
12	P54/CNTR0	TBST	O	Tone burst output
13	P53/RTP1	STB2	O	Strobe for DAC
14	P52/RTP0	RVC	O	VHF-RX power ON/OFF output
15	P51/PWM3	CLK	O	Serial clock output
16	P50/PWM0	DATA/UL	I/O	Serial data output/Unlock input
17	P47/SROY1	RUC	O	UHF-RX power ON/OFF output
18	P46/SCLK1	STB1	O	Strobe for PLL
19	P45/TXD	CTX	O	UART data transmission output
20	P44/RXD	CRX	I	UART data reception input
21	P43/∅/TOUT	BEEP/ BP2	I/O	Beep tone output/Band plan 2
22	P42/INT2	RE2	I	Rotary encoder input
23	P41/INT1	STL	I	Steal input
24	P40	SD	O	Signal detection output
25	P77	PT5	I	PTT input
26	P76	DSQ	I	Digital squelch input
27	P75	SSTB	O	Strobe signal to scramble IC
28	P74	AFS	O	AF switch output
29	P73	C/S	O	Digital scramble ON/OFF
30	P72	DUD	I	Digital unit detect
31	P71	SCR	I	Scramble IC ready signal
32	P70/INT0	BU	I	Back up signal detection input
33	RESET	RESET	I	Reset input
34	XCIN	NC	—	—
35	XCOUT	NC	—	—
36	XIN	XIN	I	Clock input
37	XOUT	XOUT	O	Clock output
38	VSS	VSS	—	CPU GND
39	P27	PSW	I	Power switch input
40	P26	SDA	O	Serial data output for EEPROM
41	P25	SCL	O	Serial clock output for EEPROM
42	P24	RE1	I	Rotary encoder input
43	P23	KI0	I	Key matrix input
44	P22	KI1	I	Key matrix input
45	P21	KI2	I	Key matrix input
46	P20	KI3	I	Key matrix input
47	P17	KO3	O	Key matrix output
48	P16	KO2	O	Key matrix output

No.	Terminal	Signal	I/O	Description
49	P15/SEG39	KO1	O	Key matrix output
50	P14/ SEG38	KO0	O	Key matrix output
51	P13/ SEG37	PUC	O	UHF-PLL power ON/OFF output
52	P12/ SEG36	PVC	O	VHF-PLL power ON/OFF output
53	P11/ SEG35	TUC	O	UHF-TX power ON/OFF output
54	P10/ SEG34	AFP	O	AF AMP power ON/OFF output
55	P07/SEG33	TVC	O	VHF-TX power ON/OFF output
56	P06/SEG32	R5C	O	RX power ON/OFF output
57	P05/SEG31	SEG31	O	LCD segment signal
58	P04/SEG30	SEG30	O	
59	P03/SEG29	SEG29	O	
60	P02/SEG28	SEG28	O	
61	P01/SEG27	SEG27	O	
62	P00/SEG26	SEG26	O	
63	P37/SEG25	SEG25	O	
64	P36/SEG24	SEG24	O	
65	P35/SEG23	SEG23	O	
66	P34/SEG22	SEG22	O	
67	P33/SEG21	SEG21	O	
68	P32/SEG20	SEG20	O	
69	P31/SEG19	SEG19	O	
70	P30/SEG18	SEG18	O	
71	SEG17	SEG17	O	
72	SEG16	SEG16	O	
73	SEG15	SEG15	O	
74	SEG14	SEG14	O	
75	SEG13	SEG13	O	
76	SEG12	SEG12	O	
77	SEG11	SEG11	O	
78	SEG10	SEG10	O	
79	SEG9	SEG9	O	
80	SEG8	SEG8	O	
81	SEG7	SEG7	O	
82	SEG6	SEG6	O	
83	SEG5	SEG5	O	
84	SEG4	SEG4	O	
85	SEG3	SEG3	O	
86	SEG2	SEG2	O	
87	SEG1	SEG1	O	
88	SEG0	SEG0	O	
89	VCC	VDD	—	CPU power terminal
90	VREF	VREF	—	AD converter power supply
91	AVSS	AVSS		AD converter GND
92	COM3	COM3	O	LCD COM3 output
93	COM2	COM2	O	LCD COM2 output
94	COM1	COM1	O	LCD COM1 output
95	COM0	COM0	O	LCD COM0 output
96	VL3	VL3	I	LCD power supply
97	VL2	VL2	I	LCD power supply
98	C2	NC	—	—
99	C1	NC	—	—
100	VL1	VL1	I	LCD power supply



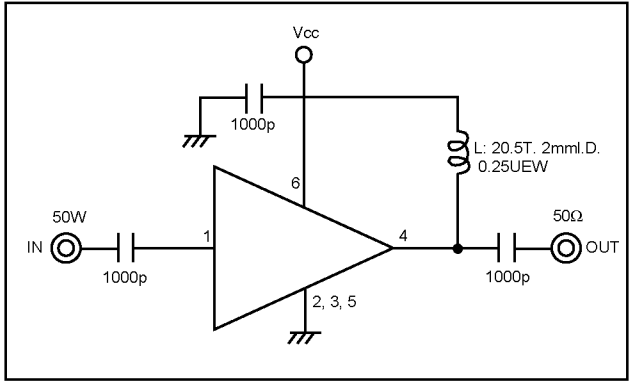
# SEMICONDUCTOR DATA

## 1) $\mu$ PC2710T (XA0449)

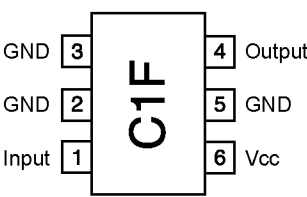
RF Amplifier

Parameter	Symbol	Condition	Ratings	Unit
Supply voltage	Vcc		5.0	V
Circuit current	Icc	Vcc=5V, no signa	22	mA
Power gain	GP	Vcc=5V, f=500MHz	33	dB
Staturated output power	Po(sat)	Vcc=5V, f=500MHz, Pin=-8dBm	+13.5	dBm
Noise figure	NF	Vcc=5V, f=500MHz	3.5	dB
Upper frequency (-3dB)	fu	Vcc=5V, Reference freq. =100MHz	1000	MHz
Isolation	ISL	Vcc=5V, f=500MHz	39	dB
Input return loss	RL in	Vcc=5V, f=500MHz	6	dB
Output return loss	RL out	Vcc=5V, f=500MHz	12	dB
Gain flatness	Gp	Vcc=5V, f=0.1~0.6GHz	0.8	dB

### Test Circuit

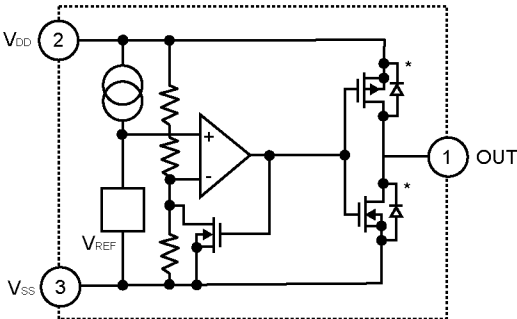
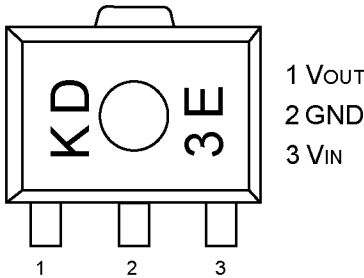


### Top View



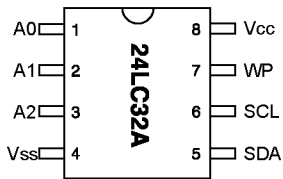
## 2) S-81350HG-KD-T1 (XA0724)

Top View



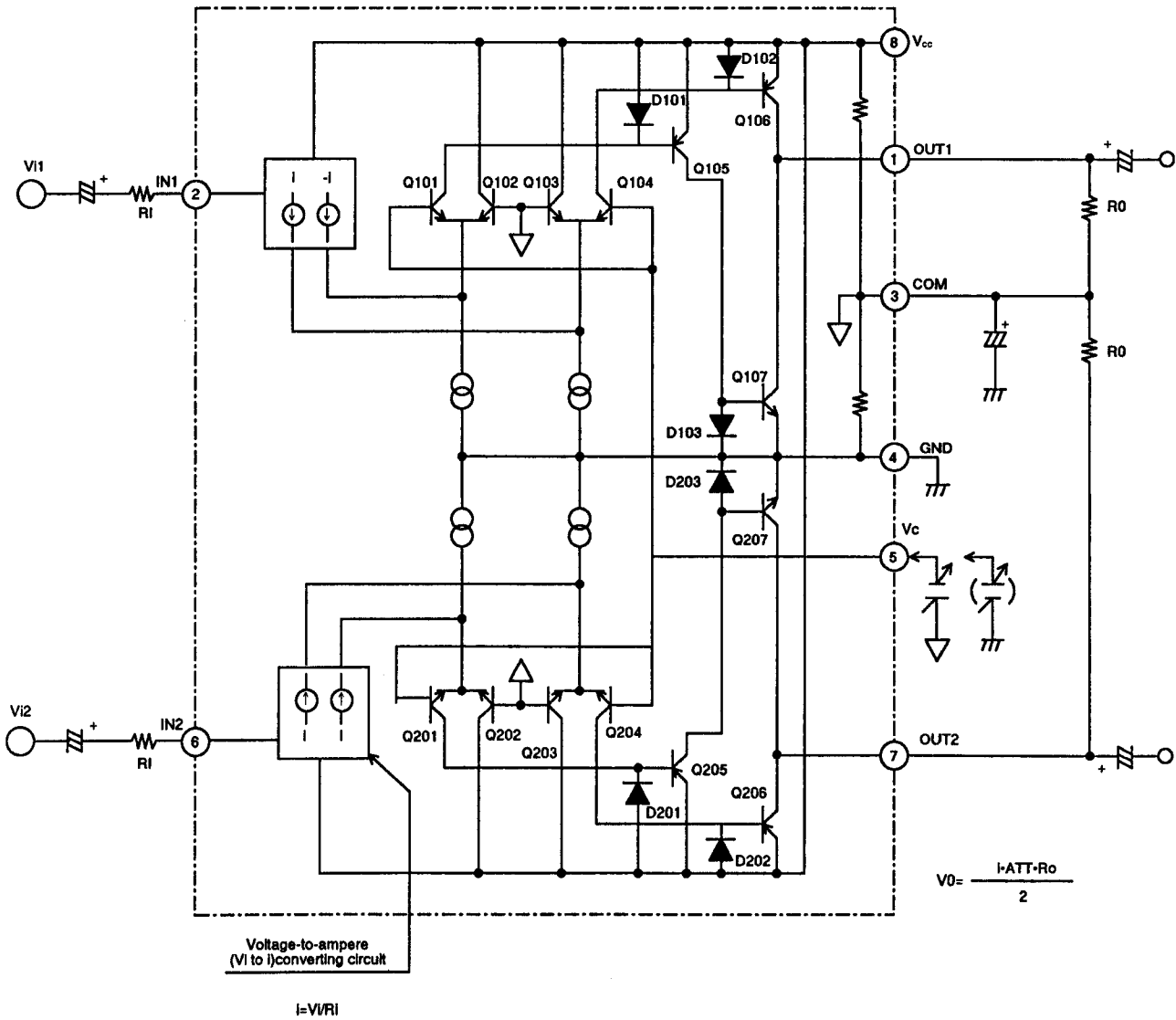
3) 24LC32AT-I/SN (XA0604)  
32K 2.5V I<sup>2</sup>C Serial EEPROM

PDIP



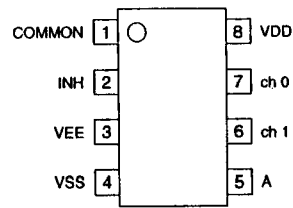
Name	Function
A0..A2	User Configurable Chip Selects
Vss	Ground
SDA	Serial Address/Data I/O
SCL	Serial Clock
WP	Write Protect Input
Vcc	+2.5V~6.0V Power Supply

4) M5222FP-600C (XA0385)  
Electronic Volume

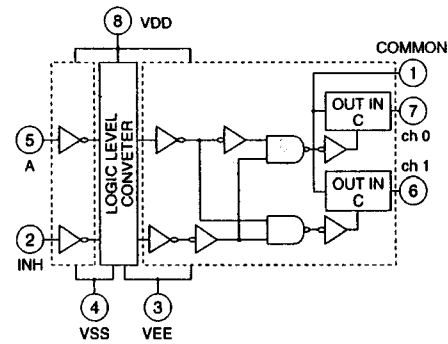


## 5) TC4W53FU (XA0348)

**Pin Assignment**

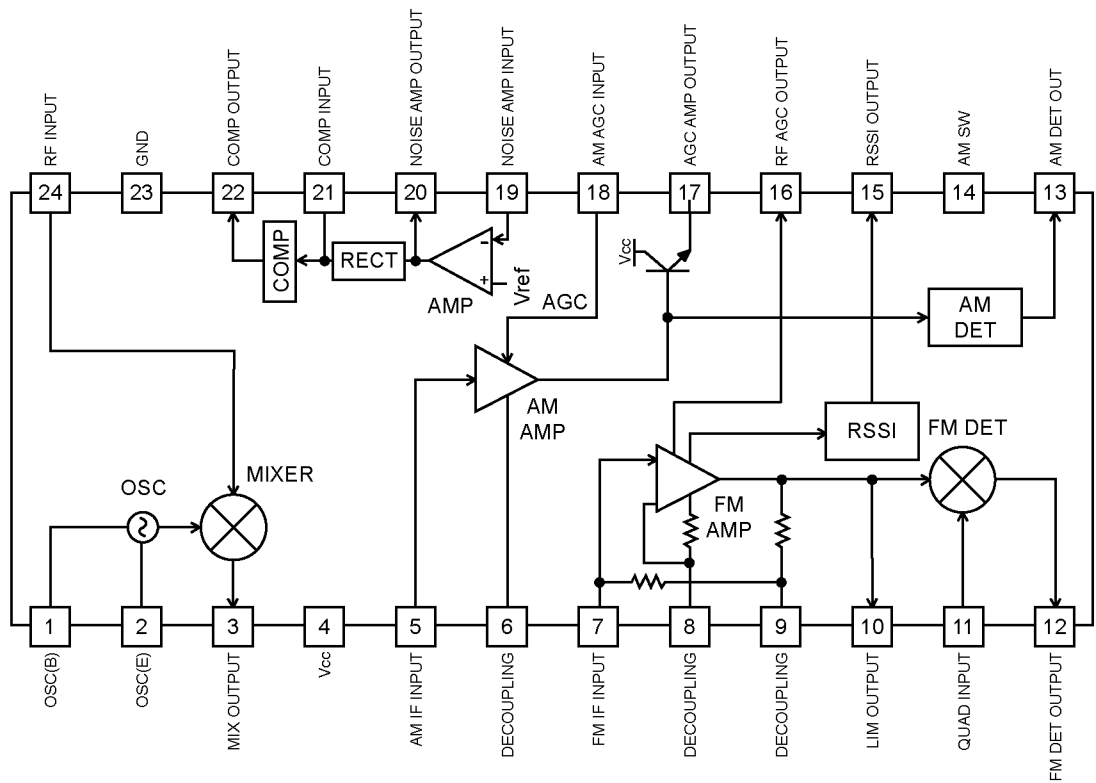


**Block Diagram**



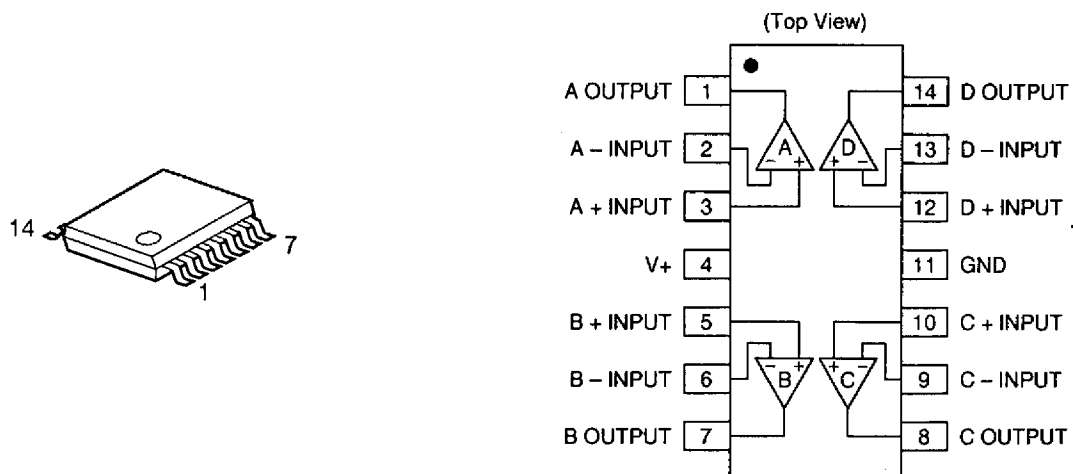
## 6) TK10931V (XA0666)

**Pin Assignment / BLOCK Diagram (Top View)**



## 7) NJM2902V-TE1 (XA0596)

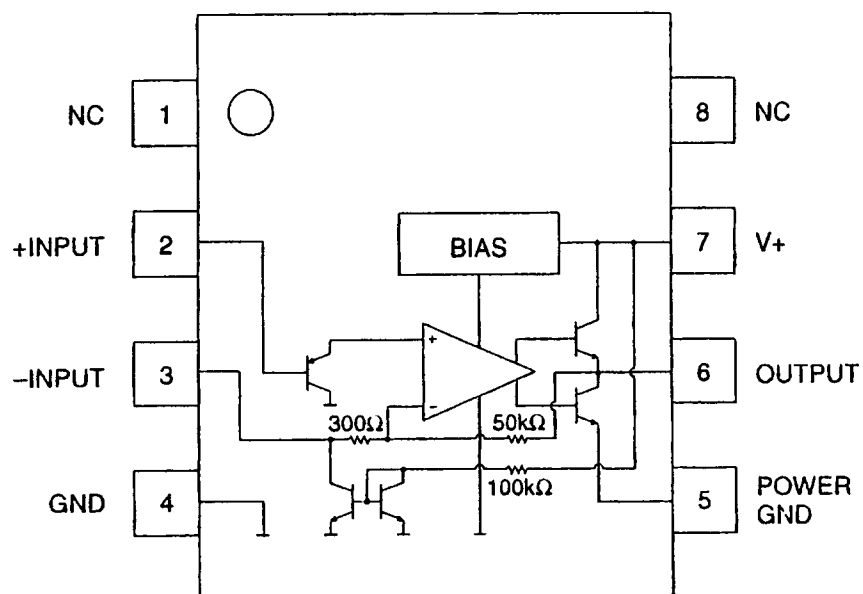
Quad Single Supply Operational Amplifier



## 8) NJM2070M (XA0210)

Low Voltage  
Power Amplifier

Block Diagram



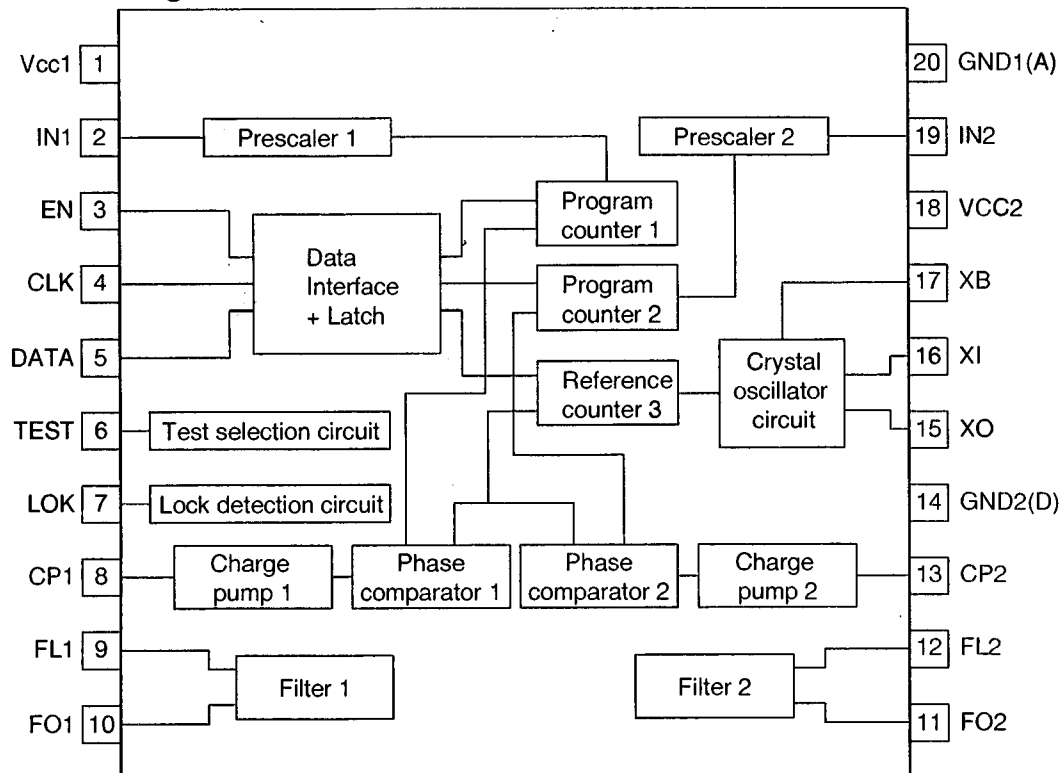
## 9) $\mu$ PD3140GS-E1 (XA0312)

80 ~ 550MHz Dual PLL Synthesizer

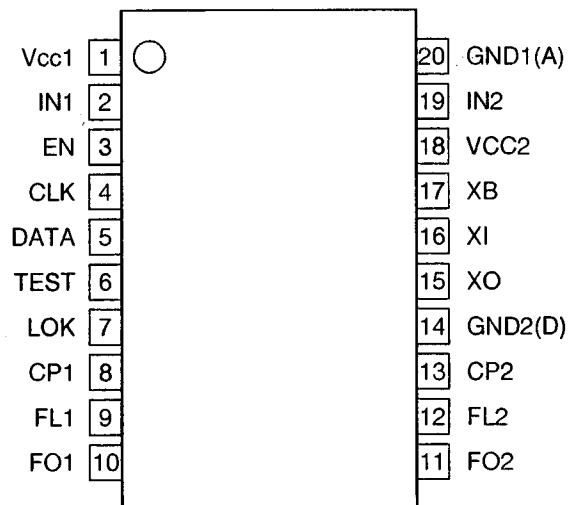
### Specifications

Operating frequency: 200 ~ 400MHz ( $V_{in}=-12 \sim 0\text{dBm}$ , pin 2 and 19 input)  
 80 ~ 550MHz ( $V_{in}=-8 \sim 0\text{dBm}$ , pin 2 and 19 input)  
 Consumption current: 2.7 ~ 4.1mA ( $V_{cc}=1.8\text{V}$  while 1 channel is used)  
 4.3 ~ 6.6mA ( $V_{cc}=1.8\text{V}$  while both channels are used)  
 0 ~ 10 $\mu$ A ( $V_{cc}=1.8\text{V}$  in power save mode)  
 3.5 ~ 5.3mA ( $V_{cc}=5\text{V}$  while 1 channel is used)  
 5.6 ~ 8.6mA ( $V_{cc}=5\text{V}$  while both channels are used)  
 Operating voltage: 1.8 ~ 5.5V

### Block Diagram



### Terminal Connection



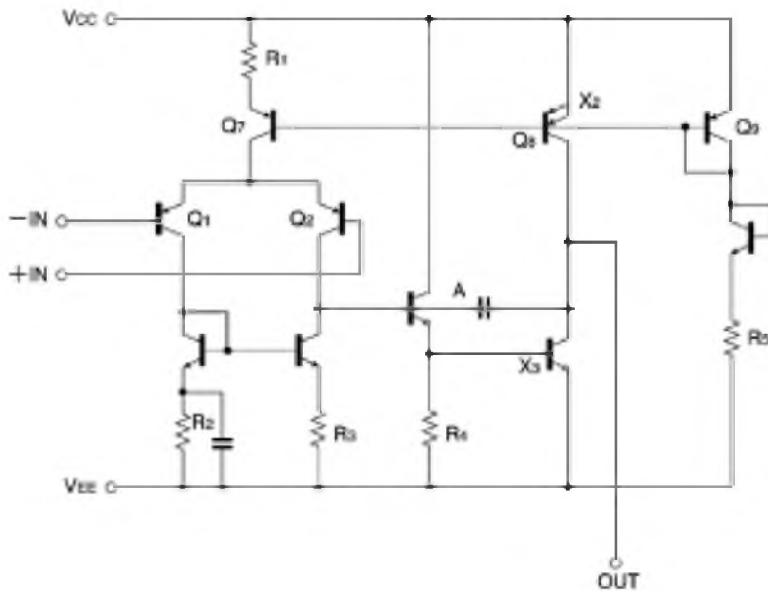
## 10) BA4510FV-E2 (XA0537)

Dual Operational Amplifier

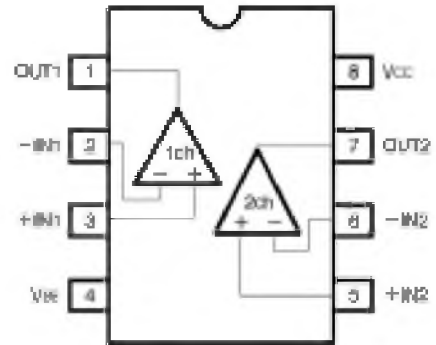
$V_{CC} = \pm 2.5V$  Typ

High through rate:  $5V/\mu Sec$

Block Diagram



(Top View)

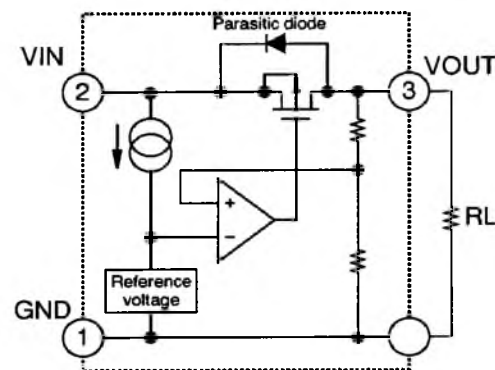
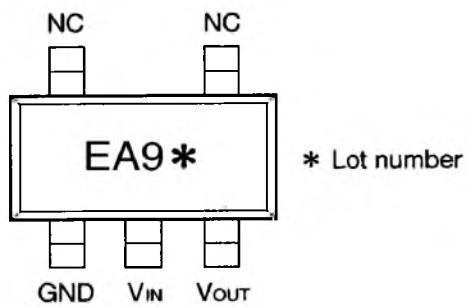


## 11) S-80845ALMP-EA9-T2 (XA0620)

Voltage Regulator

$V_{in} = 18V$

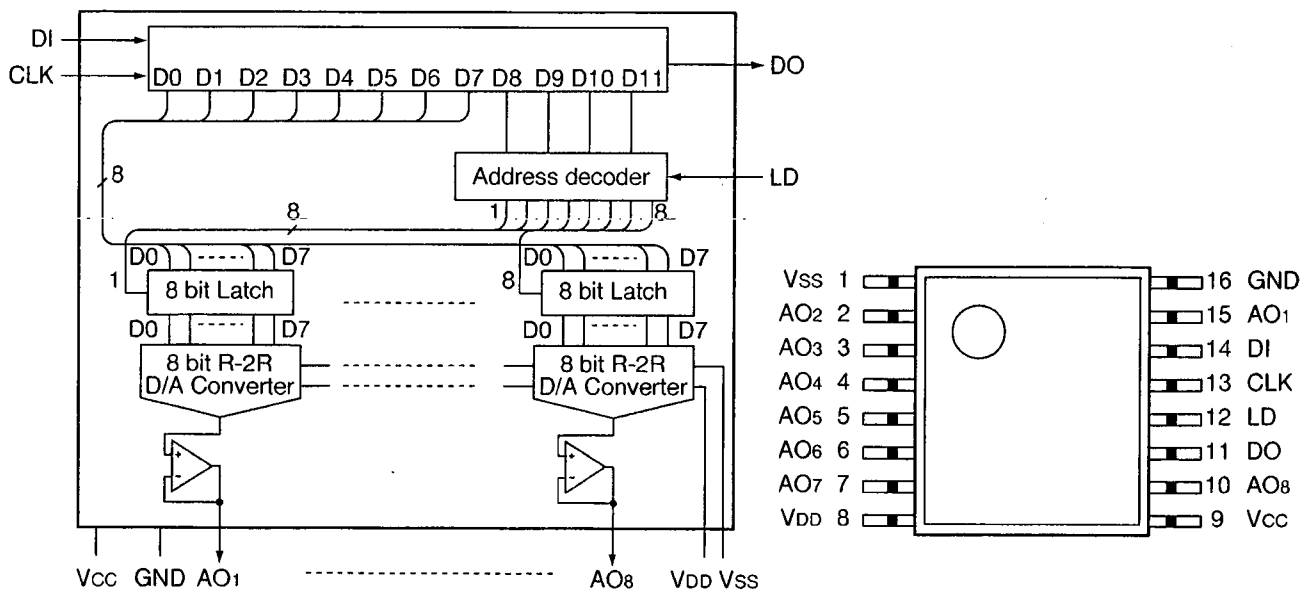
$I_{out} = 100mA$



## 12) MB88347LPFV-G-BND-EF (XA0599)

D/A converter for digital tuning

### Block Diagram



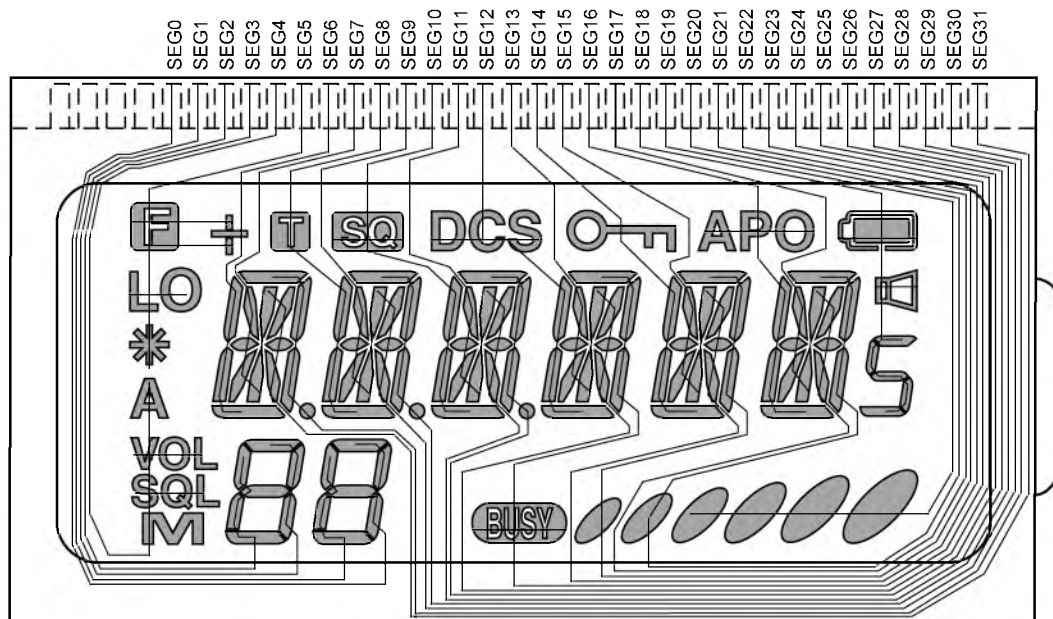
Pin No.	Name	I/O	Descriptions
14	DI	I	Serial data input terminal. Input 12 bit serial data. (Do not leave it open.)
11	DO	O	The MSB bit data of 12 bit shift register is output at the falling edge of CLK.
13	CLK	I	Shift clock input terminal. The input signal of DI terminal is input to 12 bit shift register at the rising edge of clock shift. (Do not leave it open.)
12	LD	I	When LD terminal is "High", the value of shift register is loaded in decoder and D/A output register. (Do not leave it open. Fix to "Low" when no data is transited.)
15 2 3 4 5 6 7 10	AO1 AO2 AO3 AO4 AO5 AO6 AO7 AO8	O	8 bit D/A converter output terminal with operational amplifier.
9	Vcc	-	MCU interface, power supply terminal of operational amplifier.
16	GND	-	MCU interface, ground terminal of operational amplifier.
8	VDD	-	Reference power supply (High) input terminal of D/A converter.
1	VSS	-	Reference power supply (Low) input terminal of D/A converter.

### 13) Transistor, Diode, and LED Outline Drawings

Top View

1SV214 TPH4 XD0131	1SV279 (TPH3) XD0364	1SV307(TPH3) XD0326	1SV311 TPL3 XD0344	2SB766A-TX XT0170	2SC5066FT-Y(Te85L) XT0180	2SD2216R-TX XT0135
2SK882-GR-TE85L XE0040	2SK2975-T11-A XE0038	2SK3074 XE0044	BRPG1201W TR XL0028	DA204U T106 XD0130	DAN235E-TL XD0320	ISS390 TE61 XD0342
MA132WA-TX XD0321	MA2S077-TX XD0319	MA2S30400L XD0312	MA2S111-TX XD0323	MA2S728-TX XD0315	MA741WA TX XD0251	RN731V TE-17 XD0257
RN1107 TE85L XU0193	RN1111 TE85L XU0197	RN2107 TE85L XU0192	S3DG7 XD0261	SML-310MTT86 XL0036	U2FWJ44N(Te12R) XD0294	UN9211 TX XU0063
UN911H TX XU0092	XP1111-TX XU0171	XP1116-TX XU0188	XP1501-TX XU0172			

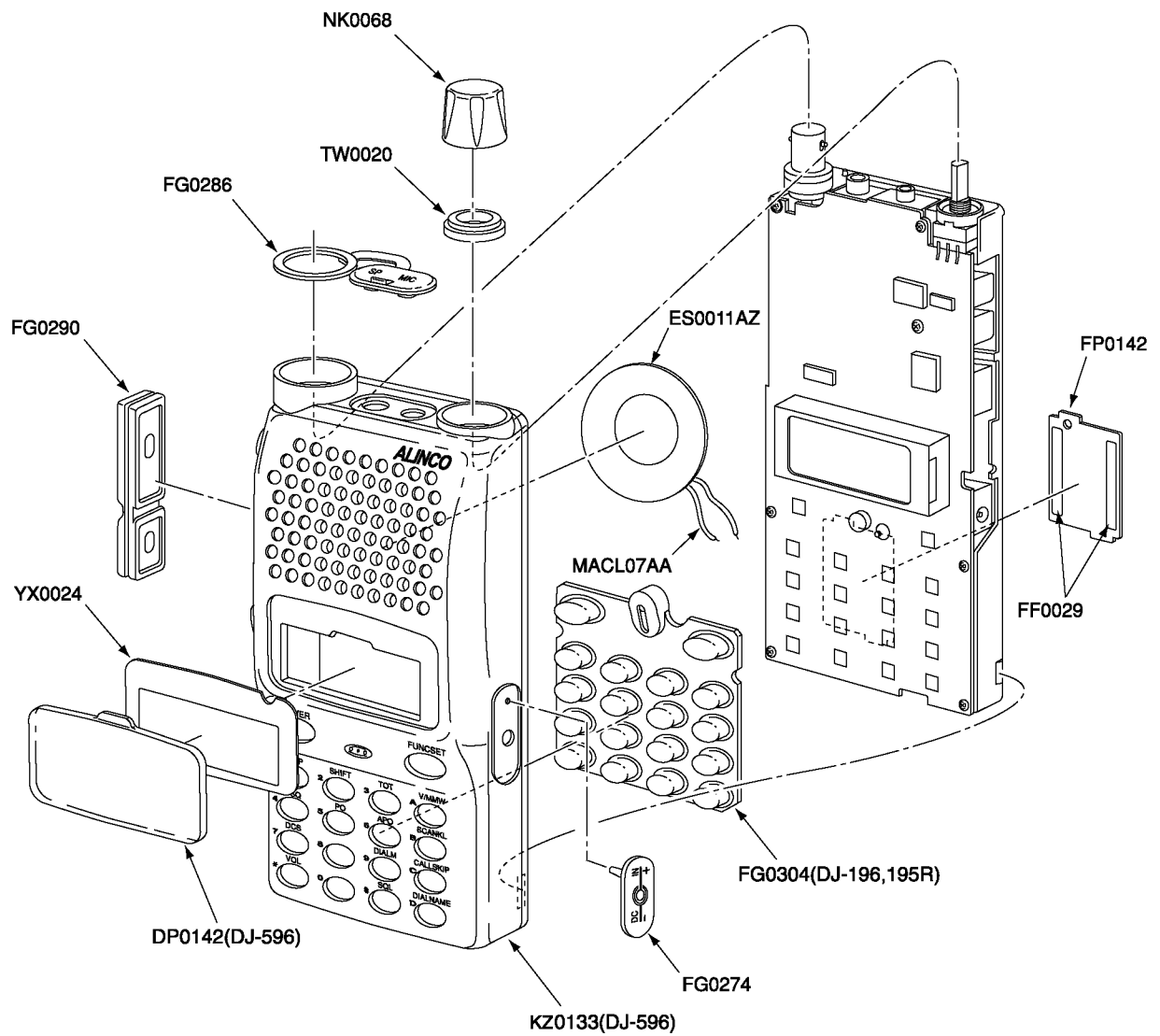
### 14) LCD Connection (EL0044)



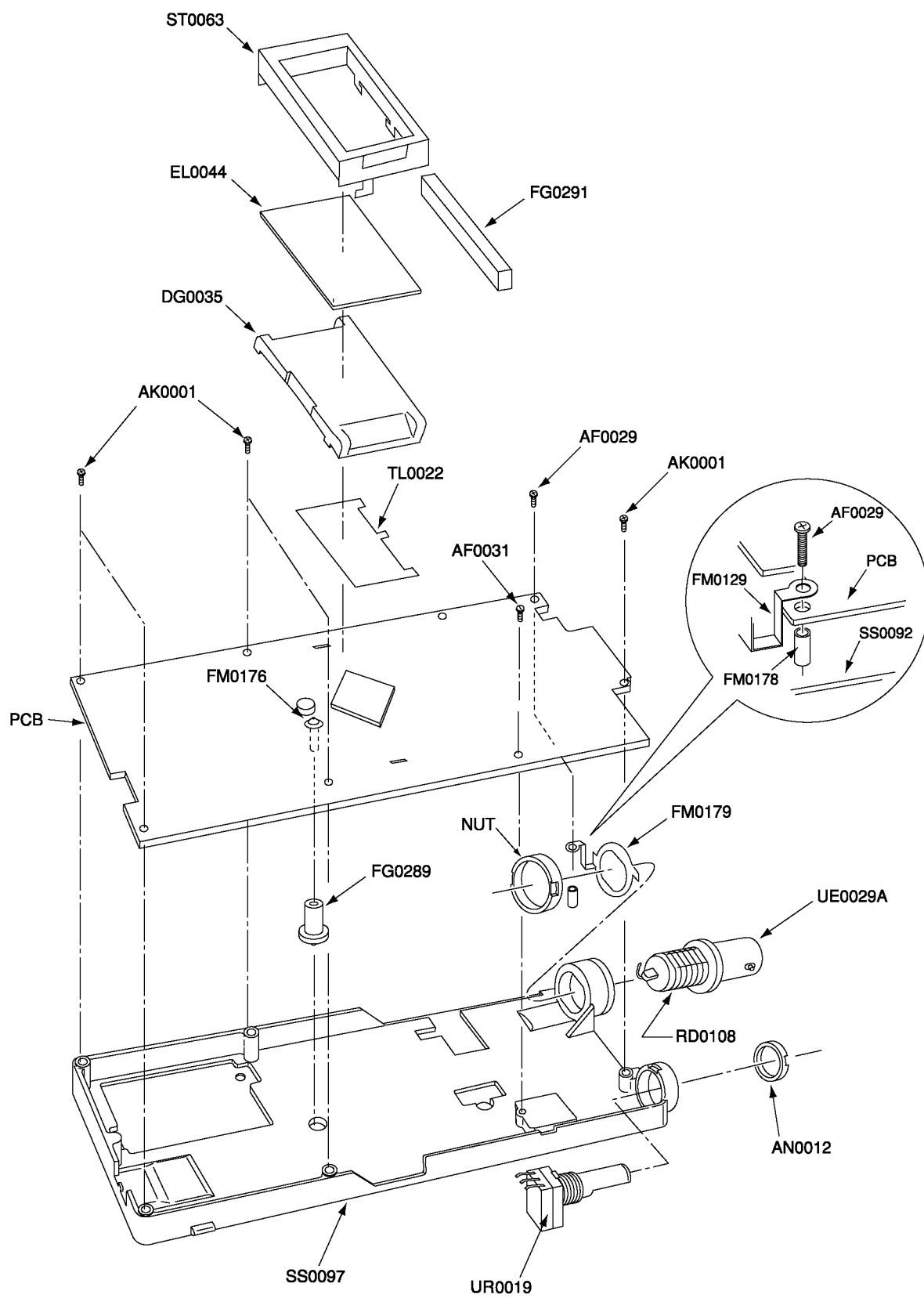


# EXPLODED VIEW

## 1) Front View



## 2) Rear View



# PARTS LIST

## MAIN Unit

Ref. No.	Parts No.	Description	Part Name	Ver.
	FM0194		RADIATIVE PLATE	
	FG0291		LCD RUBBER CONNECT.	
	TL0022		REFLECTIVE SHEET 195	
	TZ0049		SILICON DUMPER	
	DG0035		LCD LIGHT	
	FM0176		PLUS TERMINAL DJ195	
	RD0108		J1/6Z	
	ST0063		LCD HOLDER DJ195	
	UP0429	PC Board	XH791 INTEGRATED	
	TS0148		VCO Sealed DJP85	
	TS0142		VCO Case XH655	
C1	CU3535	Chip C.	GRM36B102K50PT	
C2	CU3535	Chip C.	GRM36B102K50PT	
C3	CU3517	Chip C.	GRM36CH330J50PT	
C4	CU3531	Chip C.	GRM36B471K50PT	
C5	CU3507	Chip C.	GRM36CH060D50PT	
C6	CU3535	Chip C.	GRM36B102K50PT	
C7	CU3517	Chip C.	GRM36CH330J50PT	
C8	CU3535	Chip C.	GRM36B102K50PT	
C10	CU3503	Chip C.	GRM36CK020C50PT	
C11	CU3516	Chip C.	GRM36CH270J50PT	
C12	CU0108	Chip C.	LMK212BJ105KG	
C13	CU3535	Chip C.	GRM36B102K50PT	
C14	CU3531	Chip C.	GRM36B471K50PT	
C15	CS0408	Chip Tantalum	6MCM156MATER	
C16	CU3535	Chip C.	GRM36B102K50PT	
C18	CU3502	Chip C.	GRM36CK010C50PT	
C19	CU3531	Chip C.	GRM36B471K50PT	
C20	CU0108	Chip C.	LMK212BJ105KG	
C21	CU3531	Chip C.	GRM36B471K50PT	
C22	CU3531	Chip C.	GRM36B471K50PT	
C24	CU3535	Chip C.	GRM36B102K50PT	
C25	CU3014	Chip C.	C1608CH1H180JT-AS	
C26	CU3535	Chip C.	GRM36B102K50PT	
C28	CU3531	Chip C.	GRM36B471K50PT	
C29	CU3547	Chip C.	GRM36B103K16PT	
C30	CU3531	Chip C.	GRM36B471K50PT	
C31	CU3502	Chip C.	GRM36CK010C50PT	
C32	CU3535	Chip C.	GRM36B102K50PT	
C33	CU3502	Chip C.	GRM36CK010C50PT	
C34	CU3512	Chip C.	GRM36CH120J50PT	
C37	CU3502	Chip C.	GRM36CK010C50PT	
C38	CU3531	Chip C.	GRM36B471K50PT	
C39	CU3531	Chip C.	GRM36B471K50PT	
C40	CU3519	Chip C.	GRM36CH470J50PT	
C42	CU3535	Chip C.	GRM36B102K50PT	
C43	CU3535	Chip C.	GRM36B102K50PT	
C44	CU3515	Chip C.	GRM36CH220J50PT	
C45	CS0408	Chip Tantalum	6MCM156MATER	
C46	CU3535	Chip C.	GRM36B102K50PT	
C47	CU3111	Chip C.	C1608JB1C104KT-N	
C48	CU3512	Chip C.	GRM36CH120J50PT	
C49	CU3519	Chip C.	GRM36CH470J50PT	
C50	CU3502	Chip C.	GRM36CK010C50PT	

Ref. No.	Parts No.	Description	Part Name	Ver.
C52	CU3531	Chip C.	GRM36B471K50PT	
C53	CU3547	Chip C.	GRM36B103K16PT	
C54	CU3535	Chip C.	GRM36B102K50PT	
C55	CS0398	Chip Tantalum	TMCP0J225MTR	
C56	CU3531	Chip C.	GRM36B471K50PT	
C57	CU3531	Chip C.	GRM36B471K50PT	
C59	CS0403	Chip Tantalum	TMCP1D224MTR	
C60	CU3516	Chip C.	GRM36CH270J50PT	
C61	CU3526	Chip C.	GRM36CH181J25PT	
C62	CU3531	Chip C.	GRM36B471K50PT	
C63	CU3531	Chip C.	GRM36B471K50PT	
C64	CU3547	Chip C.	GRM36B103K16PT	
C65	CU3531	Chip C.	GRM36B471K50PT	
C66	CU3111	Chip C.	C1608JB1C104KT-N	
C67	CS0403	Chip Tantalum	TMCP1D224MTR	
C68	CU3531	Chip C.	GRM36B471K50PT	
C69	CU3531	Chip C.	GRM36B471K50PT	
C70	CU0108	Chip C.	LMK212BJ105KG	
C71	CU3511	Chip C.	GRM36CH100D50PT	
C72	CU3531	Chip C.	GRM36B471K50PT	
C73	CS0398	Chip Tantalum	TMCP0J225MTR	
C74	CU3516	Chip C.	GRM36CH270J50PT	
C75	CU3512	Chip C.	GRM36CH120J50PT	
C76	CU3531	Chip C.	GRM36B471K50PT	
C77	CU3510	Chip C.	GRM36CH090D50PT	
C78	CU0108	Chip C.	LMK212BJ105KG	
C79	CU3514	Chip C.	GRM36CH180J50PT	
C80	CU3501	Chip C.	GRM36CK0R5C50PT	
C81	CU3535	Chip C.	GRM36B102K50PT	
C82	CU3502	Chip C.	GRM36CK010C50PT	
C83	CU3535	Chip C.	GRM36B102K50PT	
C84	CU3535	Chip C.	GRM36B102K50PT	
C85	CU3535	Chip C.	GRM36B102K50PT	
C86	CU3510	Chip C.	GRM36CH090D50PT	
C87	CU3506	Chip C.	GRM36CH050C50PT	
C88	CU3535	Chip C.	GRM36B102K50PT	
C89	CU3502	Chip C.	GRM36CK010C50PT	
C90	CU3502	Chip C.	GRM36CK010C50PT	
C91	CU3535	Chip C.	GRM36B102K50PT	
C92	CU3535	Chip C.	GRM36B102K50PT	
C93	CU3529	Chip C.	GRM36B331K50PT	
C94	CU3535	Chip C.	GRM36B102K50PT	
C95	CU3511	Chip C.	GRM36CH100D50PT	
C96	CU3511	Chip C.	GRM36CH100D50PT	
C97	CU3514	Chip C.	GRM36CH180J50PT	
C98	CU3535	Chip C.	GRM36B102K50PT	
C99	CU3501	Chip C.	GRM36CK0R5C50PT	
C100	CU3547	Chip C.	GRM36B103K16PT	
C101	CU3517	Chip C.	GRM36CH330J50PT	
C102	CU3519	Chip C.	GRM36CH470J50PT	
C103	CU3517	Chip C.	GRM36CH330J50PT	
C104	CU3507	Chip C.	GRM36CH060D50PT	
C105	CU3512	Chip C.	GRM36CH120J50PT	
C106	CU3516	Chip C.	GRM36CH270J50PT	

Ref. No.	Parts No.	Description	Part Name	Ver.
C107	CU3519	Chip C.	GRM36CH470J50PT	
C108	CU3512	Chip C.	GRM36CH120J50PT	
C109	CU3547	Chip C.	GRM36B103K16PT	
C110	CU3535	Chip C.	GRM36B102K50PT	
C111	CU3547	Chip C.	GRM36B103K16PT	
C112	CU3547	Chip C.	GRM36B103K16PT	
C113	CU3515	Chip C.	GRM36CH220J50PT	
C114	CU3535	Chip C.	GRM36B102K50PT	
C115	CU3531	Chip C.	GRM36B471K50PT	
C116	CU3509	Chip C.	GRM36CH080D50PT	
C118	CU3503	Chip C.	GRM36CK020C50PT	
C119	CU3531	Chip C.	GRM36B471K50PT	
C120	CU3515	Chip C.	GRM36CH220J50PT	
C121	CU3519	Chip C.	GRM36CH470J50PT	
C122	CU3547	Chip C.	GRM36B103K16PT	
C123	CU3504	Chip C.	GRM36CJ030C50PT	
C124	CU3501	Chip C.	GRM36CK0R5C50PT	
C125	CU3501	Chip C.	GRM36CK0R5C50PT	
C126	CU3531	Chip C.	GRM36B471K50PT	
C127	CU3515	Chip C.	GRM36CH220J50PT	
C128	CU3523	Chip C.	GRM36CH101J50PT	
C129	CU3535	Chip C.	GRM36B102K50PT	
C130	CU3504	Chip C.	GRM36CJ030C50PT	
C131	CU3506	Chip C.	GRM36CH050C50PT	
C132	CU3519	Chip C.	GRM36CH470J50PT	
C133	CU3506	Chip C.	GRM36CH050C50PT	
C134	CU3507	Chip C.	GRM36CH060D50PT	
C135	CE0392	Electrolytic C.	6MV47UW	
C136	CU3547	Chip C.	GRM36B103K16PT	
C137	CU3504	Chip C.	GRM36CJ030C50PT	
C138	CS0408	Chip Tantalum	6MCM156MATER	
C139	CU3516	Chip C.	GRM36CH270J50PT	
C140	CU3512	Chip C.	GRM36CH120J50PT	
C141	CU3516	Chip C.	GRM36CH270J50PT	
C142	CU3535	Chip C.	GRM36B102K50PT	
C143	CU3535	Chip C.	GRM36B102K50PT	
C144	CU3547	Chip C.	GRM36B103K16PT	
C145	CU3547	Chip C.	GRM36B103K16PT	
C146	CU3515	Chip C.	GRM36CH220J50PT	
C147	CU3111	Chip C.	C1608JB1C104KT-N	
C148	CU3111	Chip C.	C1608JB1C104KT-N	
C149	CU3111	Chip C.	C1608JB1C104KT-N	
C150	CU0108	Chip C.	LMK212BJ105KG	
C151	CU3516	Chip C.	GRM36CH270J50PT	
C154	CU3547	Chip C.	GRM36B103K16PT	
C155	CU3523	Chip C.	GRM36CH101J50PT	
C156	CU3523	Chip C.	GRM36CH101J50PT	
C157	CU3111	Chip C.	C1608JB1C104KT-N	
C158	CU3547	Chip C.	GRM36B103K16PT	
C160	CU3535	Chip C.	GRM36B102K50PT	
C161	CU3535	Chip C.	GRM36B102K50PT	
C162	CU3535	Chip C.	GRM36B102K50PT	
C163	CU0108	Chip C.	LMK212BJ105KG	
C164	CE0392	Electrolytic C.	6MV47UW	
C165	CU3535	Chip C.	GRM36B102K50PT	
C166	CU3535	Chip C.	GRM36B102K50PT	
C167	CE0373	Electrolytic C.	16MV 100UW	
C169	CU3102	Chip C.	C1608JB1C333KT-NS	
C170	CU3535	Chip C.	GRM36B102K50PT	
C171	CS0398	Chip Tantalum	TMCP0J225MTR	
C172	CU3535	Chip C.	GRM36B102K50PT	

Ref. No.	Parts No.	Description	Part Name	Ver.
C173	CU3111	Chip C.	C1608JB1C104KT-N	
C174	CU3541	Chip C.	GRM36B332K50PT	
C175	CU3551	Chip C.	GRM36B223K16PT	
C176	CU3551	Chip C.	GRM36B223K16PT	
C177	CS0367	Chip Tantalum	TMCA0J106MTR	
C178	CU3547	Chip C.	GRM36B103K16PT	
C179	CS0408	Chip Tantalum	6MCM156MATER	
C180	CU0108	Chip C.	LMK212BJ105KG	
C181	CU3538	Chip C.	GRM36B182K50PT	
C182	CS0403	Chip Tantalum	TMCP1D224MTR	
C183	CU0108	Chip C.	LMK212BJ105KG	
C184	CU3535	Chip C.	GRM36B102K50PT	
C185	CU3550	Chip C.	GRM36B183K16PT	
C186	CU3535	Chip C.	GRM36B102K50PT	
C187	CE0315Z	Electrolytic C.	16CV47BS	
C188	CU3111	Chip C.	C1608JB1C104KT-N	
C189	CU3551	Chip C.	GRM36B223K16PT	
C190	CU3111	Chip C.	C1608JB1C104KT-N	
C191	CU3111	Chip C.	C1608JB1C104KT-N	
C192	CU3535	Chip C.	GRM36B102K50PT	
C193	CS0408	Chip Tantalum	6MCM156MATER	
C194	CE0308	Electrolytic C.	6.3CV 100BS	
C195	CU0108	Chip C.	LMK212BJ105KG	
C196	CU3514	Chip C.	GRM36CH180J50PT	
C197	CU3513	Chip C.	GRM36CH150J50PT	
C198	CU3544	Chip C.	GRM36B562K25PT	
C199	CU3540	Chip C.	GRM36B272K50PT	
C201	CU3531	Chip C.	GRM36B471K50PT	
C202	CU3535	Chip C.	GRM36B102K50PT	
C203	CU3547	Chip C.	GRM36B103K16PT	
C204	CS0408	Chip Tantalum	6MCM156MATER	
C205	CU3546	Chip C.	GRM36B822K16PT	
C206	CU3047	Chip C.	C1608JB1H103KT-N	
C207	CU3523	Chip C.	GRM36CH101J50PT	
C208	CU3523	Chip C.	GRM36CH101J50PT	
C209	CU3111	Chip C.	C1608JB1C104KT-N	
C210	CU3539	Chip C.	GRM36B222K50PT	
C211	CU3535	Chip C.	GRM36B102K50PT	
C212	CU3535	Chip C.	GRM36B102K50PT	
C213	CS0403	Chip Tantalum	TMCP1D224MTR	
C214	CU3535	Chip C.	GRM36B102K50PT	
C215	CU3535	Chip C.	GRM36B102K50PT	
C216	CU3111	Chip C.	C1608JB1C104KT-N	
C218	CU3051	Chip C.	C1608JB1E223KT-NS	
C219	CU3111	Chip C.	C1608JB1C104KT-N	
C220	CU0108	Chip C.	LMK212BJ105KG	
C221	CU3535	Chip C.	GRM36B102K50PT	
C222	CU3535	Chip C.	GRM36B102K50PT	
C223	CU3111	Chip C.	C1608JB1C104KT-N	
C224	CS0403	Chip Tantalum	TMCP1D224MTR	
C225	CU0108	Chip C.	LMK212BJ105KG	
C226	CU3535	Chip C.	GRM36B102K50PT	
C227	CU3539	Chip C.	GRM36B222K50PT	
C228	CU3111	Chip C.	C1608JB1C104KT-N	
C229	CU3521	Chip C.	GRM36CH680J50PT	
C23	CU3531	Chip C.	GRM36B471K50PT	
C230	CU3535	Chip C.	GRM36B102K50PT	
C231	CU3535	Chip C.	GRM36B102K50PT	
C232	CU3547	Chip C.	GRM36B103K16PT	
C233	CU3111	Chip C.	C1608JB1C104KT-N	
C234	CU0108	Chip C.	LMK212BJ105KG	

Ref. No.	Parts No.	Description	Part Name	Ver.
C235	CS0408	Chip Tantalum	6MCM156MATER	
C236	CU3018	Chip C.	C1608CH1H390JT-AS	
C237	CU3512	Chip C.	GRM36CH120J50PT	
C238	CU3515	Chip C.	GRM36CH220J50PT	
C239	CS0408	Chip Tantalum	6MCM156MATER	
C241	CU3535	Chip C.	GRM36B102K50PT	
CN2	UE0369	Connector	AXN49301616	
D1	XD0326	Chip Diode	1SV307(TPH3)	
D2	XD0251	Chip Diode	MA741WA TX	
D3	XD0326	Chip Diode	1SV307(TPH3)	
D4	XD0326	Chip Diode	1SV307(TPH3)	
D5	XD0323	Chip Diode	MA2S111-TX	
D6	XD0343	Chip Diode	MA2S304001AR	
D7	XD0257	Chip Diode	RN731V TE-17	
D9	XD0343	Chip Diode	MA2S304001AR	
D10	XD0251	Chip Diode	MA741WA TX	
D11	XD0364	Chip Diode	1SV279(TPH3)	
D12	XD0319	Chip Diode	MA2S077-TX	
D13	XD0321	Chip Diode	MA132WA-TX	
D14	XD0319	Chip Diode	MA2S077-TX	
D15	XD0131	Chip Diode	1SV214 TPH4	
D16	XD0364	Chip Diode	1SV279(TPH3)	
D17	XD0364	Chip Diode	1SV279(TPH3)	
D18	XD0364	Chip Diode	1SV279(TPH3)	
D19	XD0319	Chip Diode	MA2S077-TX	
D20	XD0343	Chip Diode	MA2S304001AR	
D21	XD0343	Chip Diode	MA2S304001AR	
D22	XD0343	Chip Diode	MA2S304001AR	
D23	XD0319	Chip Diode	MA2S077-TX	
D24	XD0343	Chip Diode	MA2S304001AR	
D25	XD0344	Chip Diode	1SV311 (TPL3)	
D26	XD0344	Chip Diode	1SV311 (TPL3)	
D27	XD0344	Chip Diode	1SV311 (TPL3)	
D28	XD0319	Chip Diode	MA2S077-TX	
D29	XD0342	Chip Diode	1SS390 TE61	
D30	XD0344	Chip Diode	1SV311 (TPL3)	
D31	XD0320	Chip Diode	DAN235E-TL	
D32	XD0320	Chip Diode	DAN235E-TL	
D33	XD0261	Chip Diode	S3DG7	
D35	XD0130	Chip Diode	DA204U T106	
D36	XD0315	Chip Diode	MA2S728-TX	
D37	XD0321	Chip Diode	MA132WA-TX	
D38	XL0036	Chip LED	SML-310MTT86	
D39	XL0036	Chip LED	SML-310MTT86	
D40	XL0036	Chip LED	SML-310MTT86	
D41	XL0036	Chip LED	SML-310MTT86	
D42	XL0036	Chip LED	SML-310MTT86	
D43	XL0036	Chip LED	SML-310MTT86	
D44	XL0028	Chip LED	BRPG1201W TR	
D45	XD0323	Chip Diode	MA2S111-TX	
D46	XD0294	Chip Diode	U2FWJ44N(TE12R)	
D47	XD0323	Chip Diode	MA2S111-TX	
D48	XD0326	Chip Diode	1SV307(TPH3)	
FL1	XC0053	Duplex Filter	GDPX150/350A301	
FL2	XC0079	Ceramic Filter	ALFCM450E	
FL3	XC0080	Ceramic Filter	ALFCM450G	
IC1	XA0449	IC	UPC2710T-E3	
IC2	XA0312	IC	UPD3140GS-E1	
IC3	XA0724	IC	S81350HG-KD-T1	
IC4	XA0599	IC	MB88347LPFV-G-BND-EF	
IC5	XA0666	IC	TK10931VTL	

Ref. No.	Parts No.	Description	Part Name	Ver.
IC6	XA0844	IC	M38267M8L275GP	
IC7	XA0604	IC	24LC32AT-I/5N	
IC8	XA0596	IC	NJM2902V-TE1	
IC9	XA0210	IC	NJM2070M T1	
IC10	XA0385	IC	M5222FP-600C	
IC11	XA0620	IC	S-80845ALMP-EA9-T2	
IC13	XA0348	IC	TC4W53FU(TE12)	
IC14	XA0537	IC	BA4510FV-E2	
IC15	XA0348	IC	TC4W53FU(TE12)	
JK1	UJ0046	Jack	MJ82-1	
JK2	UJ0019	Jack	HSJ1493-01-010	
JK3	UJ0022	Jack	HSJ1102-01-540	
L1	QS35167	Coil	0.35-1.6-7T-L	
L2	QC0547	Chip Inductor	LK1608 R47K-T	
L3	QS35165	Coil	0.35-1.60-5T-L	
L4	QS2519A	Coil	0.25-1.90-10T-L	
L5	QB0045	Chip Inductor	EXCCL3225U1	
L6	QB0045	Chip Inductor	EXCCL3225U1	
L7	QC0600	Chip Inductor	LQW1608AR22J00	
L8	QC0533	Chip Inductor	LQN21A39NJ04	
L9	QC0507	Chip Inductor	LK16081R0K-T	
L10	QC0288	Chip Inductor	NL252018T-1R0JA	
L11	QC0538	Chip Inductor	LQN21AR10J04	
L12	QS30093	Chip Inductor	0.30-0.90-3T-L	
L13	QC0523	Chip Inductor	LQN21A3N3D04	
L15	QC0538	Chip Inductor	LQN21AR10J04	
L16	QC0535	Chip Inductor	LQN21A56NJ04	
L17	QC0616	Chip Inductor	LL1608-FS12NJ	
L18	QS40142	Coil	0.40-1.40-2T-L	
L19	QC0507	Chip Inductor	LK16081R0K-T	
L20	QC0532	Chip Inductor	LQN21A33NJ04	
L21	QC0507	Chip Inductor	LK16081R0K-T	
L22	QC0584	Chip Inductor	LQW1608A10NJ00	
L23	QC0595	Chip Inductor	LQW1608A82NJ00	
L24	QC0595	Chip Inductor	LQW1608A82NJ00	
L25	QC0595	Chip Inductor	LQW1608A82NJ00	
L26	QC0591	Chip Inductor	LQW1608A39NJ00	
L27	QC0590	Chip Inductor	LQW1608A33NJ00	
L28	QC0595	Chip Inductor	LQW1608A82NJ00	
L29	QC0506	Chip Inductor	LK1608R56K-T	
L30	QC0508	Chip Inductor	LK1608R2K-T	
L31	QC0506	Chip Inductor	LK1608R56K-T	
L32	QC0650	Chip Inductor	LL1005FH10NJ	
L33	QC0586	Chip Inductor	LQW1608A15NJ00	
L34	QC0586	Chip Inductor	LQW1608A15NJ00	
L35	QC0529	Chip Inductor	LQN21A18NJ04	
L36	QC0587	Chip Inductor	LQW1608A18NJ000	
L37	QC0585	Chip Inductor	LQW1608A12NJ00	
L38	QC0592	Chip Inductor	LQW1608A47NJ00	
L39	QC0600	Chip Inductor	LQW1608AR22J00	
LCD1	EL0044	LCD	HT-3404	
MIC1	EY0017	MIC	OB-27P44	
Q1	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q2	XU0171	Chip Transistor	XP1111-TX	
Q3	XT0135	Chip Transistor	2SD2216R-TX	
Q4	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q5	XE0038	FET	2SK2975-T11-A	
Q6	XE0044	FET	2SK3074	
Q7	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q8	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q9	XU0063	Chip Transistor	UN9211 TX	

Ref. No.	Parts No.	Description	Part Name	Ver.
Q10	XU0172	Chip Transistor	XP1501-TX	
Q11	XU0172	Chip Transistor	XP1501-TX	
Q12	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q13	XU0172	Chip Transistor	XP1501-TX	
Q14	XU0063	Chip Transistor	UN9211 TX	
Q15	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q16	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q17	XE0040	FET	2SK882-GR-TE85L	
Q18	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q19	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q20	XT0180	Chip Transistor	2SC5066FT-Y (TE85L)	
Q21	XT0135	Chip Transistor	2SD2216R-TX	
Q22	XU0193	Chip Transistor	RN1107 TE85L	
Q23	XU0193	Chip Transistor	RN1107 TE85L	
Q24	XU0197	Chip Transistor	RN1111 (TE85L)	
Q25	XT0170	Chip Transistor	2SB766A-TX	
Q26	XT0170	Chip Transistor	2SB766A-TX	
Q27	XT0170	Chip Transistor	2SB766A-TX	
Q28	XU0188	Chip Transistor	XP1116-TX	
Q29	XU0172	Chip Transistor	XP1501-TX	
Q30	XU0171	Chip Transistor	XP1111-TX	
Q31	XU0171	Chip Transistor	XP1111-TX	
Q32	XU0092	Chip Transistor	XP1501-TX	
Q33	XU0092	Chip Transistor	UN911H-TX	
Q34	XU0192	Chip Transistor	RN2107 TE85L	
Q35	XU0092	Chip Transistor	UN911H-TX	
Q36	XU0193	Chip Transistor	RN1107 TE85L	
Q37	XU0192	Chip Transistor	RN2107 TE85L	
Q38	XT0135	Chip Transistor	2SD2216R-TX	
Q39	XU0193	Chip Transistor	RN1107 TE85L	
Q40	XU0193	Chip Transistor	RN1107 TE85L	
Q41	XU0193	Chip Transistor	RN1107 TE85L	
Q42	XU0092	Chip Transistor	UN911H-TX	
Q43	XU0197	Chip Transistor	RN1111 (TE85L)	
Q44	XU0197	Chip Transistor	RN1111 (TE85L)	
Q45	XU0197	Chip Transistor	RN1111 (TE85L)	
Q46	XU0197	Chip Transistor	RN1111 (TE85L)	
Q47	XU0193	Chip Transistor	RN1107 TE85L	
Q48	XU0092	Chip Transistor	UN911H-TX	
Q49	XT0135	Chip Transistor	2SD2216R-TX	
Q50	XU0063	Chip Transistor	UN9211 TX	
R1	RK3558	Chip R.	ERJ2GEJ473X	
R2	RK3526	Chip R.	ERJ2GEJ101X	
R3	RK3530	Chip R.	ERJ2GEJ221X	
R4	RK3532	Chip R.	ERJ2GEJ331X	
R5	RK3526	Chip R.	ERJ2GEJ101X	
R6	RK3546	Chip R.	ERJ2GEJ472X	
R7	RK3524	Chip R.	ERJ2GEJ680X	
R9	RK3554	Chip R.	ERJ2GEJ223X	
R10	RK3526	Chip R.	ERJ2GEJ101X	
R11	RK3562	Chip R.	ERJ2GEJ104X	
R12	RK3550	Chip R.	ERJ2GEJ103X	
R13	RK3522	Chip R.	ERJ2GEJ470X	
R14	RK3516	Chip R.	ERJ2GEJ150X	
R15	RK3546	Chip R.	ERJ2GEJ472X	
R16	RK3550	Chip R.	ERJ2GEJ103X	
R17	RK3546	Chip R.	ERJ2GEJ472X	
R18	RK3546	Chip R.	ERJ2GEJ472X	
R19	RK3550	Chip R.	ERJ2GEJ103X	
R20	RK3518	Chip R.	ERJ2GEJ220X	
R21	RK3518	Chip R.	ERJ2GEJ220X	

Ref. No.	Parts No.	Description	Part Name	Ver.
R22	RK3561	Chip R.	ERJ2GEJ823X	
R23	RK3544	Chip R.	ERJ2GEJ332X	
R24	RK3548	Chip R.	ERJ2GEJ682X	
R25	RK3546	Chip R.	ERJ2GEJ472X	
R26	RK3526	Chip R.	ERJ2GEJ101X	
R27	RK3536	Chip R.	ERJ2GEJ681X	
R28	RK3550	Chip R.	ERJ2GEJ103X	
R29	RK3558	Chip R.	ERJ2GEJ473X	
R30	RK3526	Chip R.	ERJ2GEJ101X	
R31	RK3554	Chip R.	ERJ2GEJ223X	
R33	RK3546	Chip R.	ERJ2GEJ472X	
R34	RK3542	Chip R.	ERJ2GEJ222X	
R35	RK3550	Chip R.	ERJ2GEJ103X	
R36	RK3553	Chip R.	ERJ2GEJ183X	
R37	RK3550	Chip R.	ERJ2GEJ103X	
R38	RK3562	Chip R.	ERJ2GEJ104X	
R39	RK3562	Chip R.	ERJ2GEJ104X	
R40	RK3550	Chip R.	ERJ2GEJ103X	
R41	RK3548	Chip R.	ERJ2GEJ682X	
R42	RK3547	Chip R.	ERJ2GEJ562X	
R43	RK3546	Chip R.	ERJ2GEJ472X	
R44	RK3546	Chip R.	ERJ2GEJ472X	
R45	RK3538	Chip R.	ERJ2GEJ102X	
R46	RK3574	Chip R.	ERJ2GEJ105X	
R47	RK3554	Chip R.	ERJ2GEJ223X	
R48	RK3546	Chip R.	ERJ2GEJ472X	
R49	RK3543	Chip R.	ERJ2GEJ272X	
R50	RK3534	Chip R.	ERJ2GEJ471X	
R51	RK3542	Chip R.	ERJ2GEJ222X	
R52	RK3526	Chip R.	ERJ2GEJ101X	
R53	RK3562	Chip R.	ERJ2GEJ104X	
R54	RK3574	Chip R.	ERJ2GEJ105X	
R55	RK3550	Chip R.	ERJ2GEJ103X	
R56	RK3547	Chip R.	ERJ2GEJ562X	
R57	RK3526	Chip R.	ERJ2GEJ101X	
R58	RK3532	Chip R.	ERJ2GEJ331X	
R59	RK3550	Chip R.	ERJ2GEJ103X	
R60	RK3534	Chip R.	ERJ2GEJ471X	
R61	RK3550	Chip R.	ERJ2GEJ103X	
R62	RK3566	Chip R.	ERJ2GEJ224X	
R63	RK3547	Chip R.	ERJ2GEJ562X	
R64	RK3522	Chip R.	ERJ2GEJ470X	
R65	RK3534	Chip R.	ERJ2GEJ471X	
R66	RK3566	Chip R.	ERJ2GEJ224X	
R67	RK3534	Chip R.	ERJ2GEJ471X	
R68	RK3542	Chip R.	ERJ2GEJ222X	
R69	RK3550	Chip R.	ERJ2GEJ103X	
R70	RK3542	Chip R.	ERJ2GEJ222X	
R71	RK3562	Chip R.	ERJ2GEJ104X	
R72	RK3522	Chip R.	ERJ2GEJ470X	
R73	RK3562	Chip R.	ERJ2GEJ104X	
R74	RK3544	Chip R.	ERJ2GEJ332X	
R75	RK3518	Chip R.	ERJ2GEJ220X	
R76	RK3574	Chip R.	ERJ2GEJ105X	
R77	RK3574	Chip R.	ERJ2GEJ105X	
R78	RK3574	Chip R.	ERJ2GEJ105X	
R79	RK3574	Chip R.	ERJ2GEJ105X	
R80	RK3526	Chip R.	ERJ2GEJ101X	
R81	RK3538	Chip R.	ERJ2GEJ102X	
R82	RK3538	Chip R.	ERJ2GEJ102X	
R83	RK3568	Chip R.	ERJ2GEJ334X	

Ref. No.	Parts No.	Description	Part Name	Ver.
R84	RK3539	Chip R.	ERJ2GEJ122X	E
R85	RK3539	Chip R.	ERJ2GEJ122X	
R86	RK3562	Chip R.	ERJ2GEJ104X	
R87	RK3526	Chip R.	ERJ2GEJ101X	
R88	RK3544	Chip R.	ERJ2GEJ332X	
R89	RK3028	Chip R.	MCR03EZJH151	
R90	RK3542	Chip R.	ERJ2GEJ222X	
R91	RK3562	Chip R.	ERJ2GEJ104X	
R92	RK3558	Chip R.	ERJ2GEJ473X	
R93	RK3501	Chip R.	ERJ2GE0R00X	
R94	RK3550	Chip R.	ERJ2GEJ103X	
R95	RK3544	Chip R.	ERJ2GEJ332X	
R96	RK3550	Chip R.	ERJ2GEJ103X	
R97	RK3550	Chip R.	ERJ2GEJ103X	
R98	RK3574	Chip R.	ERJ2GEJ105X	
R99	RK3574	Chip R.	ERJ2GEJ105X	
R100	RK3574	Chip R.	ERJ2GEJ105X	
R101	RK3550	Chip R.	ERJ2GEJ103X	
R102	RK3562	Chip R.	ERJ2GEJ104X	
R103	RK3552	Chip R.	ERJ2GEJ153X	
R104	RK3550	Chip R.	ERJ2GEJ103X	
R105	RK3574	Chip R.	ERJ2GEJ105X	
R106	RK3562	Chip R.	ERJ2GEJ104X	
R107	RK3550	Chip R.	ERJ2GEJ103X	
R108	RK3538	Chip R.	ERJ2GEJ102X	
R109	RK3554	Chip R.	ERJ2GEJ223X	
R110	RK3554	Chip R.	ERJ2GEJ223X	
R111	RK3554	Chip R.	ERJ2GEJ223X	
R112	RK3551	Chip R.	ERJ2GEJ123X	
R113	RK3539	Chip R.	ERJ2GEJ122X	
R115	RK3062	Chip R.	MCR03EZJH104	
R116	RK3550	Chip R.	ERJ2GEJ103X	
R117	RK3058	Chip R.	MCR03EZJH473	
R118	RK0002	Chip R.	ERJ6GEYJ120V	
R119	RK3567	Chip R.	ERJ2GEJ274X	
R120	RK3558	Chip R.	ERJ2GEJ473X	
R121	RK3566	Chip R.	ERJ2GEJ224X	
R122	RK3546	Chip R.	ERJ2GEJ472X	
R123	RK3556	Chip R.	ERJ2GEJ333X	
R124	RK3552	Chip R.	ERJ2GEJ153X	
R125	RK3565	Chip R.	ERJ2GEJ184X	
R126	RK3501	Chip R.	ERJ2GE0R00X	
R127	RK3542	Chip R.	ERJ2GEJ222X	
R128	RK3558	Chip R.	ERJ2GEJ473X	
R129	RK3558	Chip R.	ERJ2GEJ473X	
R130	RK3550	Chip R.	ERJ2GEJ103X	
R131	RK3538	Chip R.	ERJ2GEJ102X	
R132	RK3538	Chip R.	ERJ2GEJ102X	
R133	RK3538	Chip R.	ERJ2GEJ102X	
R134	RK3554	Chip R.	ERJ2GEJ223X	
R135	RK3550	Chip R.	ERJ2GEJ103X	
R136	RK3562	Chip R.	ERJ2GEJ104X	
R137	RK3563	Chip R.	ERJ2GEJ124X	
R138	RK3542	Chip R.	ERJ2GEJ222X	
R139	RK3562	Chip R.	ERJ2GEJ104X	
R140	RK3550	Chip R.	ERJ2GEJ103X	
R141	RK3552	Chip R.	ERJ2GEJ153X	
R142	RK3562	Chip R.	ERJ2GEJ104X	
R143	RK3556	Chip R.	ERJ2GEJ333X	
R144	RK3547	Chip R.	ERJ2GEJ562X	
R145	RK3562	Chip R.	ERJ2GEJ104X	

Ref. No.	Parts No.	Description	Part Name	Ver.
R146	RK3550	Chip R.	ERJ2GEJ103X	
R147	RK3538	Chip R.	ERJ2GEJ102X	
R148	RK3550	Chip R.	ERJ2GEJ103X	
R149	RK3548	Chip R.	ERJ2GEJ682X	
R150	RK3554	Chip R.	ERJ2GEJ223X	
R151	RK3561	Chip R.	ERJ2GEJ823X	
R153	RK3552	Chip R.	ERJ2GEJ153X	
R154	RK3562	Chip R.	ERJ2GEJ104X	
R155	RK3557	Chip R.	ERJ2GEJ393X	
R156	RK3522	Chip R.	ERJ2GEJ470X	
R157	RK3526	Chip R.	ERJ2GEJ101X	
R158	RK3562	Chip R.	ERJ2GEJ104X	
R159	RK3548	Chip R.	ERJ2GEJ682X	
R160	RK3542	Chip R.	ERJ2GEJ222X	
R161	RK3532	Chip R.	ERJ2GEJ331X	
R162	RK3558	Chip R.	ERJ2GEJ473X	
R163	RK3561	Chip R.	ERJ2GEJ823X	
R164	RK3522	Chip R.	ERJ2GEJ470X	
R165	RK3559	Chip R.	ERJ2GEJ563X	
R166	RK3574	Chip R.	ERJ2GEJ105X	
R167	RK3550	Chip R.	ERJ2GEJ103X	
R168	RK3550	Chip R.	ERJ2GEJ103X	
R169	RK3562	Chip R.	ERJ2GEJ104X	
R170	RK3563	Chip R.	ERJ2GEJ124X	
R171	RK3526	Chip R.	ERJ2GEJ101X	
R172	RK3546	Chip R.	ERJ2GEJ472X	
R173	RK3546	Chip R.	ERJ2GEJ472X	
R174	RK3546	Chip R.	ERJ2GEJ472X	
R175	RK3546	Chip R.	ERJ2GEJ472X	
R176	RK3559	Chip R.	ERJ2GEJ563X	
R177	RK3563	Chip R.	ERJ2GEJ124X	
R178	RK3552	Chip R.	ERJ2GEJ153X	
R179	RK3550	Chip R.	ERJ2GEJ103X	
R180	RK3566	Chip R.	ERJ2GEJ224X	
R181	RK3550	Chip R.	ERJ2GEJ103X	
R182	RK3574	Chip R.	ERJ2GEJ105X	
R183	RK3556	Chip R.	ERJ2GEJ333X	
R184	RK3550	Chip R.	ERJ2GEJ103X	
R185	RK3550	Chip R.	ERJ2GEJ103X	
R186	RK3514	Chip R.	ERJ2GEJ100X	
R187	RK3550	Chip R.	ERJ2GEJ103X	
R188	RK3572	Chip R.	ERJ2GEJ684X	
R189	RK3550	Chip R.	ERJ2GEJ103X	
R190	RK3560	Chip R.	ERJ2GEJ683X	
R191	RK3567	Chip R.	ERJ2GEJ274X	
R192	RK3550	Chip R.	ERJ2GEJ103X	
R193	RK3553	Chip R.	ERJ2GEJ183X	
R194	RK3550	Chip R.	ERJ2GEJ103X	
R195	RK3554	Chip R.	ERJ2GEJ223X	
R196	RK3550	Chip R.	ERJ2GEJ103X	
R197	RK1018	Chip R.	ERJ8GEYJ101V	
R198	RK3566	Chip R.	ERJ2GEJ224X	
R199	RK3554	Chip R.	ERJ2GEJ223X	
R202	RK3550	Chip R.	ERJ2GEJ103X	
R203	RK3558	Chip R.	ERJ2GEJ473X	
R204	RK3565	Chip R.	ERJ2GEJ184X	
R205	RK3501	Chip R.	ERJ2GE0R00X	
R206	RK3550	Chip R.	ERJ2GEJ103X	
R207	RK3562	Chip R.	ERJ2GEJ104X	
R208	RK3550	Chip R.	ERJ2GEJ103X	
R209	RK3501	Chip R.	ERJ2GE0R00X	

Ref. No.	Parts No.	Description	Part Name	Ver.
R210	RK3562	Chip R.	ERJ2GEJ104X	
R211	RK3558	Chip R.	ERJ2GEJ473X	
R212	RK3558	Chip R.	ERJ2GEJ473X	
R213	RK3532	Chip R.	ERJ2GEJ331X	
R214	RK3536	Chip R.	ERJ2GEJ681X	
R215	RK3567	Chip R.	ERJ2GEJ274X	
R216	RK3554	Chip R.	ERJ2GEJ223X	
R217	RK3552	Chip R.	ERJ2GEJ153X	
R218	RK3562	Chip R.	ERJ2GEJ104X	
R219	RK3566	Chip R.	ERJ2GEJ224X	
R220	RK3574	Chip R.	ERJ2GEJ105X	
R221	RK3554	Chip R.	ERJ2GEJ223X	
R222	RK3569	Chip R.	ERJ2GEJ394X	
R223	RK3536	Chip R.	ERJ2GEJ681X	
R224	RK3536	Chip R.	ERJ2GEJ681X	
R225	RK3536	Chip R.	ERJ2GEJ681X	
R226	RK3562	Chip R.	ERJ2GEJ104X	
R227	RK3569	Chip R.	ERJ2GEJ394X	
R228	RK3556	Chip R.	ERJ2GEJ333X	
R229	RK3552	Chip R.	ERJ2GEJ153X	
R230	RK3534	Chip R.	ERJ2GEJ471X	
R231	RK3562	Chip R.	ERJ2GEJ104X	
R232	RK3557	Chip R.	ERJ2GEJ393X	
R233	RK3558	Chip R.	ERJ2GEJ473X	
R234	RK3550	Chip R.	ERJ2GEJ103X	
R235	RK3550	Chip R.	ERJ2GEJ103X	
R236	RK3574	Chip R.	ERJ2GEJ105X	
R237	RK3562	Chip R.	ERJ2GEJ104X	
R238	RK3562	Chip R.	ERJ2GEJ104X	
R239	RK3538	Chip R.	ERJ2GEJ102X	
R240	RK3574	Chip R.	ERJ2GEJ105X	
R241	RK3574	Chip R.	ERJ2GEJ105X	
R242	RK3574	Chip R.	ERJ2GEJ105X	
R243	RK3574	Chip R.	ERJ2GEJ105X	
R244	RK3554	Chip R.	ERJ2GEJ223X	
R245	RK3562	Chip R.	ERJ2GEJ104X	
R246	RK3538	Chip R.	ERJ2GEJ102X	
R247	RK3526	Chip R.	ERJ2GEJ101X	
R251	RK3534	Chip R.	ERJ2GEJ471X	
SW17	UU0030	Switch	EVQPJ005Q	
SW18	UU0030	Switch	EVQPJ005Q	
TC1	CT0045	Trimmer	SMD3-010C1	
VR1	RH0144	Trimmer Pot.	MVR22HXBRN223	
VR2	RH0144	Trimmer Pot.	MVR22HXBRN223	
VR3	RH0144	Trimmer Pot.	MVR22HXBRN223	
VR4	RH0144	Trimmer Pot.	MVR22HXBRN223	
W3	MACLH2GG	Wire	#30AH1-025-H1	
W4	MRCKH5AA	Wire	#28R02-55-02	
X1	XQ0139	Crystal	UM5 12.9MHZ	
X2	XK0003	Discriminator	CDBM450C7	
X3	XQ0131	Crystal	CSA310 3.686400MHZ	
XF1	XF0039	Crystal Filter	DSF753SB D39115GQ1	

## Mechanical Parts

Ref. No.	Parts No.	Description	Part Name	Ver.
	SS0097		CHASSIS DJ596	
	FG0290		KL6767-PTT DJ195	
	YX0024		LCD TAPE DJ195	
	UR0019		RH70N00E20 (RY-6320)	
	TW0020		W.PROOF A XH720	
	NK0068		DIAL KNOB DJ195	
	KZ0133		FRONTCASE DJ596	
	FM0187		REAR PANEL DJ196	
	FM0179		ANTENNA EARTH PLATE	
	FM0178		PIN DJ195	
	FG0304		KL3735-3 16KEY DJ196	
	FG0289		TERMINAL RUBBER 195	
	UE0029A		ANT.CONNNECT.DJ460	
	AN0012		RND N7X0.75 BR/B.ZN	
	AF0031		SCREW	
	AK0001Z		BT 3P 2X4 NIC	
	AF0029		XQN2+C9FN	
	FG0274		DC CAP	
	FG0286		KL6766-JACK CAPDJ195	
	FF0029		CLOTH 4.0X22	
	AF0020Z		1P 2X3 NIC	
	ES0011BZ	Speaker	036M9014B	
	DP0142		LCD PANEL	
W1	MACL07AA	Wire	#30A02-070-02	
W2	MPCL07AA	Wire	#30P02-070-02	

## Packing Parts

Ref. No.	Parts No.	Description	Part Name	Ver.
	EG0043	NiMH-Battery	EBP50N	
	EW0019	Wall charger 120V	EDC-93	T
	EW0020	Wall charger 230V	EDC-94	E
	EA0098		ANTENNA	
	#G0862		BELT CLIP	
	PS0380		INSTRUCTION MANUAL	
	PH0009A		WARRANTY	T
	DS0466		SPEC.SHEET	
	PR0478		CE LABEL	E
	PK0086		CIRCUIT DIAGRAM	
	PR0452		FCC HOME USE LABEL	T
	PR0447		FCC LABEL	T
	HK0512		PACAGE	
	HU0178		INNER	
	HU0181		INNER A	
	HM0209		CARTON 10	
	HU0170		INNER 10	
	HP0006Z		PROTECTION BAG	
	PR0514		E-10×49 LABEL	



# ADJUSTMENT

## 1) Required Test Equipment

The following items are required to adjust radio parameters.

### 1. Regulated Power supply

Supply voltage:	5 to 14 VDC
Current:	3A or more

### 2. Digital Multimeter

Voltage range:	FS = Approx. 20V
Current:	10A or more
Input resistance:	High impedance

### 3. Oscilloscope

Measurable frequency:	Audio Frequency
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### 4. Audio Dummy Load

Impedance:	8 $\Omega$
Dissipation:	1W or more
Jack:	3.5mm $\varnothing$

### 5. SSG

Output frequency:	500MHz or more
Output level:	-20dB $\mu$ /0.1 $\mu$ V to 120dB $\mu$ /1V
Modulation:	FM

### 6. Spectrum Analyzer

Measuring range:	Up to 2GHz or more
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### 7. Power meter

Measurable frequency:	Up to 500MHz
Impedance:	50 $\Omega$ , unbalanced
Measuring range:	0.1W to 10W

### 8. Audio Voltmeter

Measurable frequency:	Up to 100kHz
Sensitivity:	1mV to 10V

### 9. Audio Generator

Output frequency:	67Hz to 10kHz
Output impedance:	600 $\Omega$ , unbalanced

### 10. Distortion Meter/SINAD Meter

Measurable frequency:	1kHz
Input level:	Up to 40dB
Distortion level:	1% to 100%

## 11.Frequency Counter

Measurable frequency:	Up to 500MHz
Measurable stability:	Approx. $\pm 0.1$ ppm

## 12.Linear Detector

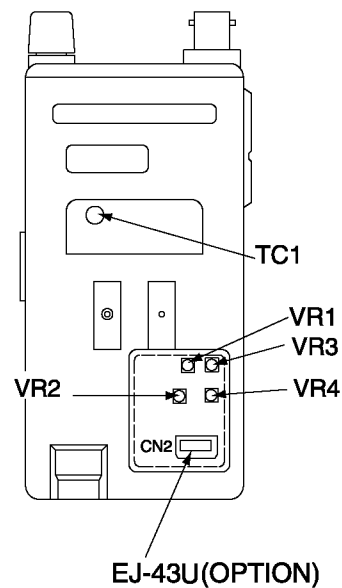
Measurable frequency:	Up to 500MHz
Characteristics:	Flat
CN:	60 dB or more

### **Note**

- Standard modulation: 1kHz  $\pm$  3.5kHz /DEV
- Reference sensitivity: 12dB SINAD
- Specified audio output level: 200mW at 8 $\Omega$
- Standard audio output level: 50mW at 8 $\Omega$
- Use an RF cable (3D2W:1m) for test equipment.
- Attach a fuse to the RF indicated by EMF.
- All SSG outputs are indicated by EMF.
- Supply voltage for the transceiver: 13.8VDC

## 2) Entering and releasing the adjustment mode

The DJ-596 does not require a serviceperson to manipulate the components on the printed-circuit board, except the trimmer when adjusting reference frequency and deviation. Most of the adjustments for the transceiver are made by using the keys on it while the unit is in the adjustment mode. Because the adjustment mode temporarily uses the channels, frequency must be set on each channel before adjustments can be made. For instructions on how to program the channels, see the "DJ-596 INSTRUCTION MANUAL " which came with the product. In consideration of the radio environment, the frequency on each channel must be near the value (+/-1MHz) listed in the table below. To enter the adjustment mode, set key lock and input 490217. Decimal point at 100MHz and 10MHz appears in LCD. (To release the mode, same manner to enter the adjustment mode.)



**Channel frequency used in the adjustment mode**

Memory Channel	Channel Function	Frequency (MHz)	
		T	E
1	Reference frequency	445	435
2	UHF high-power	445	435
3	UHF low-power	445	435
4	VHF high-power	145	145
5	VHF low-power	145	145
6	VHF minimum frequency sensitivity	136	136
7	VHF medium frequency sensitivity	145	145
8	VHF maximum frequency sensitivity	173	173
9	UHF minimum frequency sensitivity	410	410
10	UHF medium frequency sensitivity	445	435
11	UHF maximum frequency sensitivity	490	490
12	VHF S-meter (1)	145	145
13	VHF S-meter (FULL)	145	145
14	UHF S-meter (1)	445	435
15	UHF S-meter (FULL)	445	435
16	VHF wide deviation	145	145
17	VHF narrow deviation	145	145
18	UHF wide deviation	445	435
19	UHF narrow deviation	445	435

### Reference frequency adjustment

1. In the adjustment mode, select channel 1 by rotating the main tuning dial.
2. Press the **(PTT)** key to start transmission.
3. Rotate TC1 on the main board until the value on the frequency counter matches the one displayed on the LCD.

### UHF high-power adjustment

1. In the adjustment mode, select channel 2 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 4.5W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the high power setting.

### UHF low-power adjustment

1. In the adjustment mode, select channel 3 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 0.8W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the low power setting.

### VHF high-power adjustment

1. In the adjustment mode, select channel 4 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 4.5W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the high power setting.

### VHF low-power

1. In the adjustment mode, select channel 5 by rotating the main tuning dial.
2. Hold down the **(PTT)** key to start transmission.
3. While watching the reading of the TX power meter, set the output power to the value closest to 0.8W by rotating the main tuning dial.
4. When the **(PTT)** key is released, the output power at that time will be stored as the low power setting.

### **VHF minimum frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 6 by rotating the main tuning dial.
2. Set the minimum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **VHF medium frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 7 by rotating the main tuning dial.
2. Set the medium frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **VHF maximum frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 8 by rotating the main tuning dial.
2. Set the maximum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **UHF minimum frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 9 by rotating the main tuning dial.
2. Set the minimum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **UHF medium frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 10 by rotating the main tuning dial.
2. Set the medium frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **UHF maximum frequency sensitivity adjustment**

See "Note on adjusting the sensitivity" later in this section.

1. In the adjustment mode, select channel 11 by rotating the main tuning dial.
2. Set the maximum frequency sensitivity rotating the main tuning dial, while F appears after the **(FUNC)** key is pressed.

### **VHF S-meter (1) adjustment**

1. In the adjustment mode, select channel 12 by rotating the main tuning dial.  
The S-meter will show a single circle ( ● )
2. Enter "0" dBμ(EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key The transceiver beeps indicating the new setting has been stored successfully.

### VHF S-meter (FULL) adjustment

1. In the adjustment mode, select channel 13 by rotating the main tuning dial.  
The S-meter will show all circles ( ●●●●●● )
2. Enter "+20" dB $\mu$  (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key. The transceiver beeps indicating the new setting has been stored successfully.

### UHF S-meter (1) adjustment

1. In the adjustment mode, select channel 14 by rotating the main tuning dial.  
The S-meter will show a single circle ( ● )
2. Enter "0" dB $\mu$  (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key. The transceiver beeps indicating the new setting has been stored successfully.

### UHF S-meter (FULL) adjustment

1. In the adjustment mode, select channel 15 by rotating the main tuning dial.  
The S-meter will show all circles ( ●●●●●● )
2. Enter "+20" dB $\mu$  (EMF) with the transceiver tester (SSG).
3. Press the **(FUNC)** key. The transceiver beeps indicating the new setting has been stored successfully.

### VHF wide deviation adjustment

1. In the adjustment mode, select channel 16 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR1 on the printed-circuit board of the transceiver until the deviation is set to 4.5kHz.

### VHF narrow deviation adjustment

1. In the adjustment mode, select channel 17 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR2 on the printed-circuit board of the transceiver until the deviation is set to 2.2kHz.

### UHF wide deviation adjustment

1. In the adjustment mode, select channel 18 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR3 on the printed-circuit board of the transceiver until the deviation is set to 4.5kHz.

## UHF narrow deviation adjustment

1. In the adjustment mode, select channel 19 by rotating the main tuning dial.
2. Input a 50mVrms, 1kHz signal with your transceiver tester through the external microphone jack.
3. With the tester, put the transceiver in the transmission mode.
4. Rotate the VR4 on the printed-circuit board of the transceiver until the deviation is set to 2.2kHz.

## Channel frequency used in the test mode

Memory Channel	Channel Function	Frequency (MHz)	
		T	E
20	DTMF (1)	145	145
21	DTMF (D)	145	145
22	Tone 67Hz	145	145
23	Tone 88.5Hz	145	145
24	Tone 250.3Hz	145	145
25	DCS code 255	145	145
26	Tone Burst test	145	145
27	Digital mode deviation *	145	145

\* : Required if EJ-43U is installed.

## DTMF (1) test

This function is only for checking the DTMF code, not adjusting it.

1. In the adjustment mode, select channel 20 by rotating the main tuning dial.
2. Press the **(PTT)** key. DTMF code "1" is automatically sent and you will hear the monitoring tone from the speaker.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.1 to 3.7kHz range.

## DTMF (D) test

1. In the adjustment mode, select channel 21 by rotating the main tuning dial.
2. Press the **(PTT)** key. DTMF code "D" is automatically sent and you will hear the monitoring tone from the speaker.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.1 to 3.7kHz range.

## Tone 67Hz test

This function is only for checking the tone encoder, not adjusting it.

1. In the adjustment mode, select channel 22 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 67Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

### **Tone 88.5Hz test**

1. In the adjustment mode, select channel 23 by rotating the main tuning dial.
2. Press the **(PTT)** key. An 88.5Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

### **Tone 250.3Hz test**

1. In the adjustment mode, select channel 24 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 250.3Hz tone is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.4 to 1.2kHz range.

### **DCS code 255 test**

This function is only for checking the DCS code encoder, not adjusting it.

1. In the adjustment mode, select channel 25 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 255 DCS code is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 0.5 to 1.5kHz range.

### **Tone Burst test**

This function is only for checking the tone burst, not adjusting it.

1. In the adjustment mode, select channel 26 by rotating the main tuning dial.
2. Press the **(PTT)** key. A 1750Hz tone burst is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.3 to 3.7kHz range.

### **Digital mode deviation test (Optional EJ-43U required)**

This function is only for checking the digital mode deviation, not adjusting it.

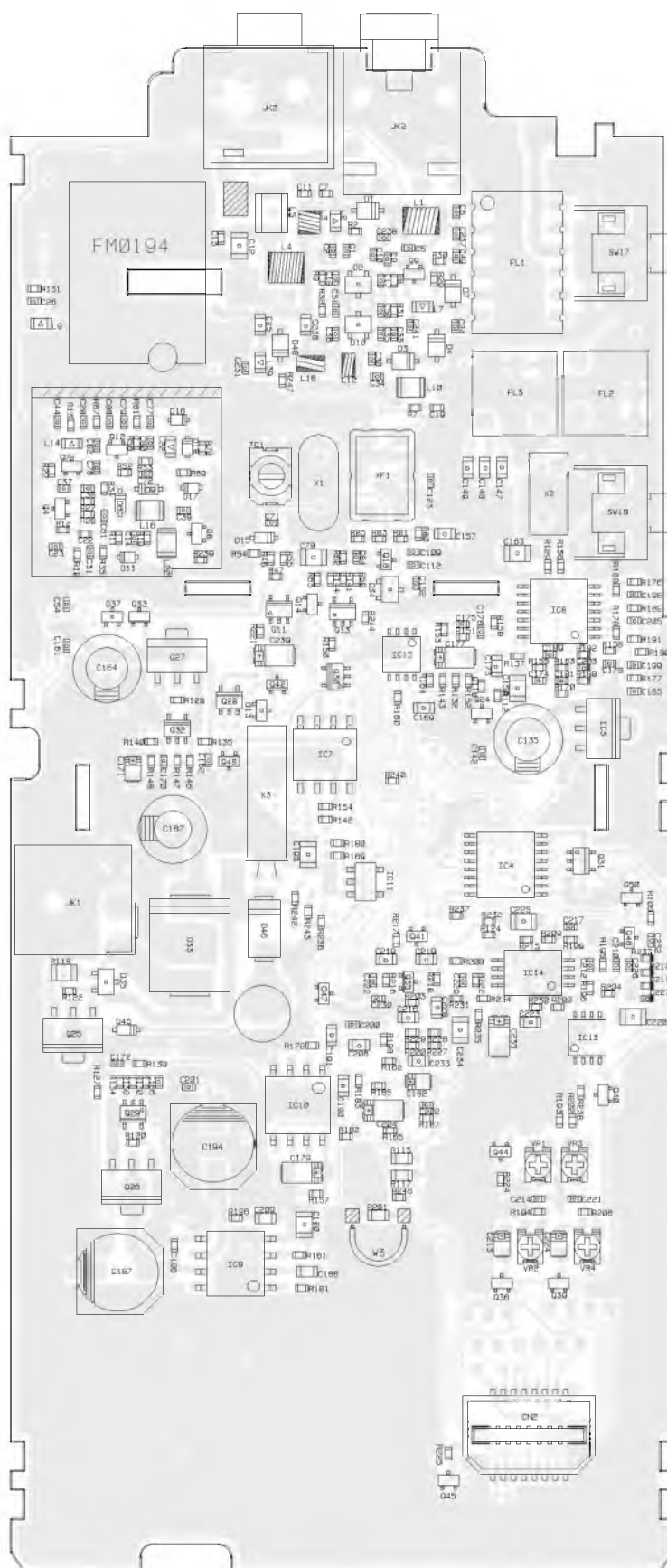
1. In the adjustment mode, select channel 27 by rotating the main tuning dial.
2. Press the **(PTT)** key. A digital code "000000" is automatically sent.
3. Check the deviation with the transceiver tester, and make sure the deviation level is within 2.8 to 3.7kHz range.



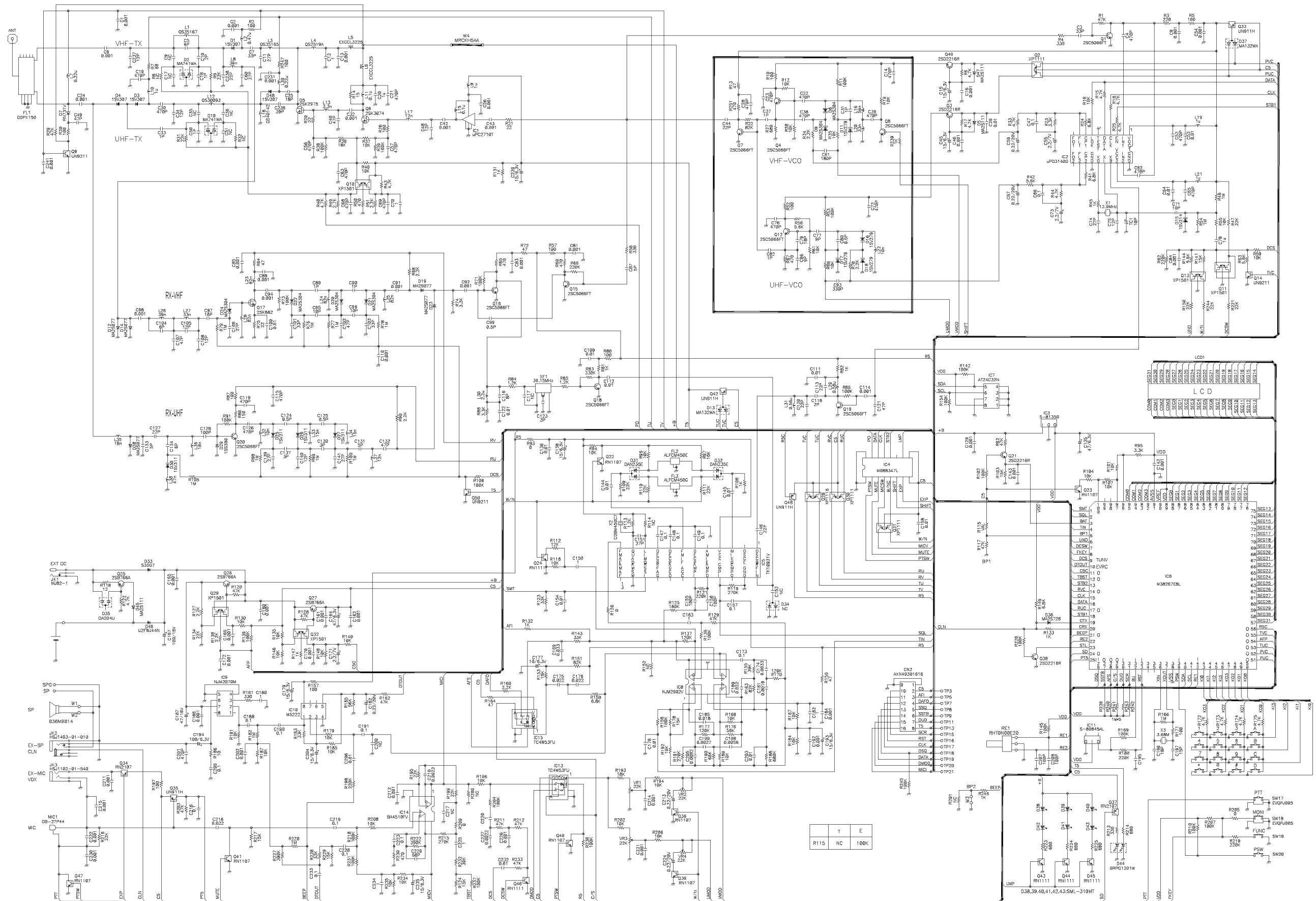
## MAIN SIDE A



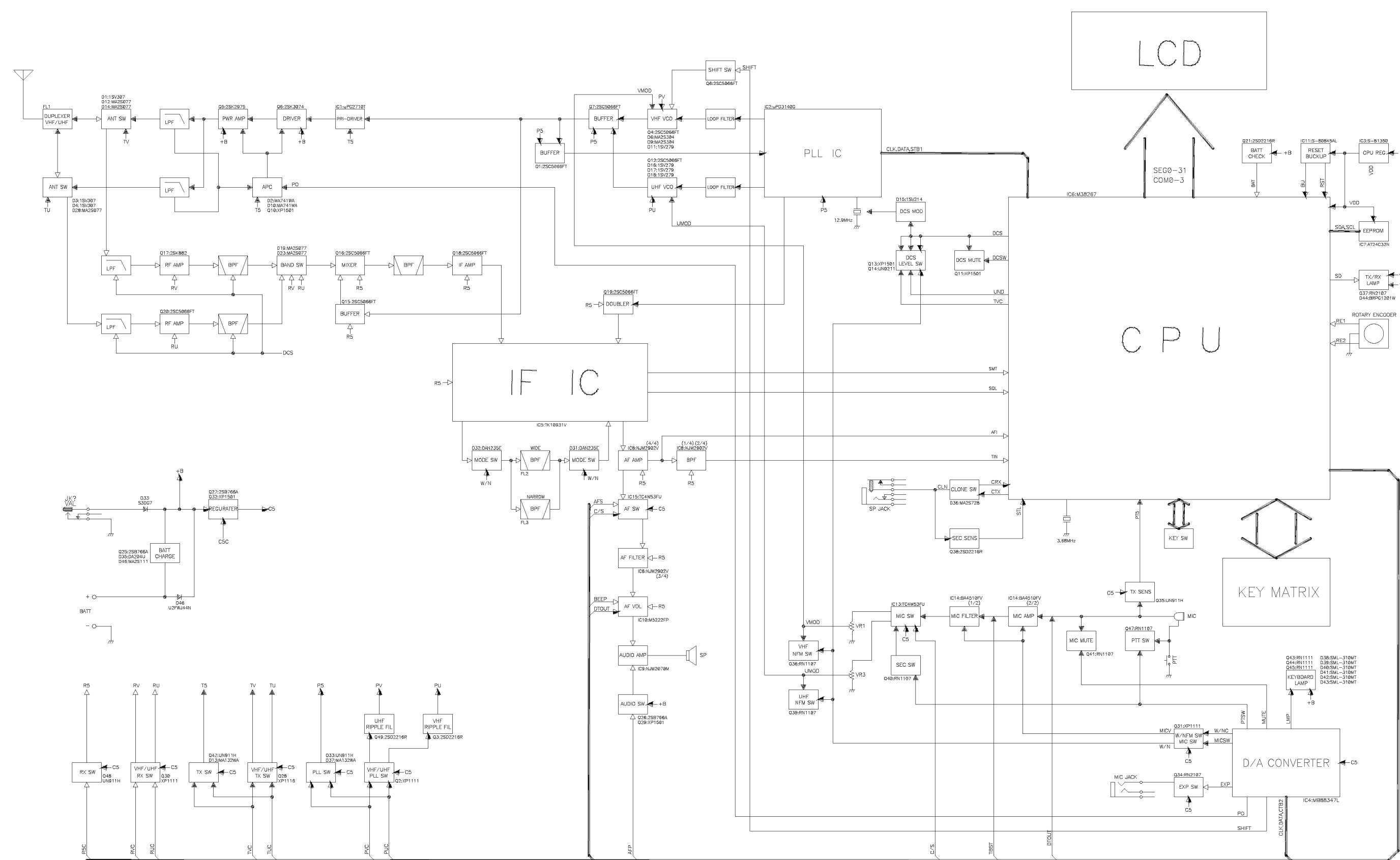
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## SCHEMATIC DIAGRAM DJ-596



BLOCK DIAGRAM DJ-596



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